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CONTENTS

THE WHOLE OF THE LITERARY MATTER IN THE LANCET IS COPYRIGHT.

AN ADDRESS on Puerperal Sepsis: Its Prevention and Treatment. By BECKWITH WHITEHOUSE, M.B., M.S., F.R.C.S.—(*Illustrated*). 1091

AN ADDRESS on Links with the Past. By Sir J. KINGSTON FOWLER, K.C.V.O., C.M.G., M.D. 1138

ORIGINAL ARTICLES.

The Treatment of Severe Gastric and Duodenal Hæmorrhage. By ARTHUR F. HURST, M.D., F.R.C.P. 1095

The Inorganic Constituents of the Blood in Certain Pathological Conditions. By O. L. V. DE WESSELOW, M.B., F.R.C.P. 1099

Some Observations on the Schick Test. By CLAUDE B. KER, M.D., F.R.C.P., and JOHN MCGARRITY, M.B., D.P.H. 1101

Treatment of Symptoms in Inoperable Cancer with Liquor Potassæ. By DOROTHEA M. GALL, M.B., C.B. 1104

MEDICAL SOCIETIES.

Royal Society of Medicine: Section of Epidemiology and State Medicine: The Elucidation of Cancer 1105

London Association of the Medical Women's Federation: Bacteriophage.—Use of Vaccines and Sera 1105

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REVIEWS AND NOTICES OF BOOKS.

Pediatrics. Edited by Prof. Isaac A. Abt. M.D. 1109

Diseases of the Rectum and Colon. By P. Lockhart-Mummery, F.R.C.S. 1110

Diagnostische und Therapeutische Irrtümer und deren Verhütung. Vol. II.: "Psychiatrie." By Prof. Dr. E. Meyer 1110

L'Année Psychologique . 1110

Right Food the Right Remedy. By Charles C. Froude, B.Sc. 1110

Die Zwillingspathologie. Von Dr. H. W. Siemens 1111

Religion and the New Psychology. By N. Bishop Harman, M.B., F.R.C.S. 1111

To Venice and Back in a Two-Seater. By E. Halford Ross..... 1111

Journal of Industrial Hygiene 1111

British Journal of Anæsthesia 1112

Journal of the R.A.M.C. 1112

NEW INVENTIONS.

Apparatus for Supporting the Jaw during Anæsthesia (E. H. P. Cave, M.R.C.S.)—(*Illustrated*) 1112

LEADING ARTICLES.

THE LISTER INSTITUTE .. 1113

FUTURE OF THE INDIAN MEDICAL SERVICE 1114

THE WHITE MAN IN THE TROPICS 1114

MEDICAL PROTECTION ... 1115

ANNOTATIONS.

Quinine and Malaria in Europe 1116

Chlorination of the Water of Swimming Baths .. 1117

The Conduct of Inebriate Homes 1117

Exciting Causes of Epileptic Seizures 1117

Urotropine in the Prevention of Post-operative Retention of Urine.... 1118

The Lessons of Animal Diseases 1118

Genesis of Miners' Nystagmus 1119

The Demonstration of *S. pallida* in Tissues... 1119

Cutis Verticis Gyrata.... 1119

MODERN TECHNIQUE IN TREATMENT.

LXXIII.—Treatment of Fractures of the Ankle. By W. A. COCHRANE, F.R.C.S.—(*Illustrated*). 1120

SPECIAL ARTICLES.

The General Medical Council: President's Address..... 1132

The People's League of Health: First International Congress at Wembley 1122

The Difficulties of Insurance Practice: Three Official Inquiries..... 1124

British Empire Exhibition, Wembley: Its Medical and Sanitary Administration.—III. . 1127

A Health Bill for the Irish Free State 1128

Vienna: Ætiology of Death at Different Age-Periods 1128

An Art Exhibition by Medical Men 1133

Infectious Diseases in England and Wales.. 1136

CORRESPONDENCE.

Wasting Diseases of Childhood (Dr. Leonard G. Parsons) 1129

Toxic Effects of Local Anæsthesia (Dr. Dan McKenzie) 1129

The late Mr. Walter Thompson (Dr. A. P. Bertwistle) 1130

Pyorrhœa Alveolaris (Dr. A. Knyvett Gordon) .. 1130

Tartar Emetic in Bilharziasis (Mr. J. E. R. McDonagh) 1130

Herpes and Varicella: Their Ætiological Relationship (Dr. Amy M. Thoms) 1130

Medical Defence and Protection (Sir John Rose Bradford, Dr. C. M. Fegen) 1131

The Psychology of Sea-Sickness 1131

MEDICAL NEWS.

University of London.... 1133

Epsom College: Special Scholarships 1133

Lebanon Mental Hospital 1098

East End Mothers' Lying-in Home..... 1098

Smoke Control in Lancashire 1116

Bristol Royal Infirmary . 1121

South London Hospital for Women 1124

Congleton War Memorial Hospital 1129

Royal Medical Benevolent Fund 1131

Kent Ophthalmic Hospital 1133

Proposed Memorial to the late Sir William Macewen..... 1133

Epidemic Encephalitis .. 1133

National Association for the Prevention of Tuberculosis 1134

Research Defence Society 1134

Paris: Academy of Medicine 1134

Glasgow Post-Graduate Medical Association ... 1134

Blackburn Infirmary Extension 1134

Donations and Bequests . 1134

PARLIAMENTARY INTELLIGENCE.

House of Lords: Therapeutic Substances Bill . 1135

House of Commons: Health Consultative Councils.—Compulsory Insurance by Motor Owners.—Government's Housing Bill.—Hospitals for Early Mental Cases.—National Insurance Contributions.—Medical Examination of Policemen.—Blind Persons and Health Insurance.—Financial Grants to Hospitals 1135

THE SERVICES.

Royal Army Medical Corps: Offer of Commissions.—Royal Air Force.—Indian Medical Service 1136

NOTES, COMMENTS, AND ABSTRACTS.

Unbreakable Surgical Needles 1139

"The Shot" 1139

Health Conditions in Somaliland and the Straits Settlements ... 1140

Walking for Health 1140

The Garb of the Physician 1140

An Early Observation of Caisson Disease 1140

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Fraudulent Begging from Medical Men 1140

The Nursing of Surgical Tuberculosis..... 1140

Medical Diary 1136

Appointments 1137

Vacancies 1137

Births, Marriages, Deaths 1138

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An Address

ON

PUERPERAL SEPSIS:

ITS PREVENTION AND TREATMENT.

Read before the Ulster Medical Society at Belfast

BY BECKWITH WHITEHOUSE, M.B., M.S. LOND., F.R.C.S. ENG.,

HONORARY OBSTETRIC SURGEON, GENERAL HOSPITAL, BIRMINGHAM; ASSISTANT TO THE CHAIR OF MIDWIFERY AND DISEASES OF WOMEN, UNIVERSITY OF BIRMINGHAM; LATE HUNTERIAN PROFESSOR, ROYAL COLLEGE OF SURGEONS.

IN introducing the subject of puerperal sepsis for discussion this evening I make no excuse, inasmuch as it is a problem which to-day must command the serious attention of our profession. Unfortunately, throughout the civilised world the present death-rate from septic complications of childbirth is little better than it was 30 years ago. This has been emphasised in many recent writings. Eden, in 1922, drew attention to the increasing mortality from childbirth from 1911 to 1920, and pointed out that this increase was due to the factor of infection, deaths from other causes having actually decreased. Whitridge Williams, in the preface to the fifth edition of his classic on "Obstetrics," recently published, refers to the statistics of Howard and Eichel, which prove that in America childbirth was actually more dangerous in 1921 than in 1916. Furthermore, to quote Williams's words, "The death-rate is greater in urban than in rural communities, and that while reasonably satisfactory results are obtained in the largest cities, in which a considerable proportion of deliveries are cared for in hospitals conducted by trained specialists, they are superior in country districts to those obtained in the medium-sized and small towns."

This is a very interesting observation, and it is possible that it may have some bearing on the discrepancy that exists in the incidence of deaths from puerperal sepsis in England, Scotland, and Ireland respectively.

INCIDENCE OF PUERPERAL SEPSIS.

In Table I. and Chart 1 are shown the death-rate from sepsis as per 1000 births in the three countries

TABLE I.—*Extract from Registrar-General's Report. Deaths from Puerperal Sepsis in Relation to Births. Years 1912–1922.*

ENGLAND AND WALES.

Year.	Births.	Deaths.	Rate per 1000.	Year.	Births.	Deaths.	Rate per 1000.
1912	321,362	1216	3·7	1918	328,615	845	2·5
1913	324,492	1108	3·4	1919	411,287	1157	2·8
1914	331,730	1365	4·1	1920	424,929	1730	4·07
1915	397,130	1201	3·02	1921	359,470	1171	3·2
1916	317,535	1083	3·4	1922	333,662	1079	3·2
1917	296,012	873	2·9				

SCOTLAND.

1912	122,716	193	1·5	1918	98,554	113	1·1
1913	120,516	160	1·3	1919	106,268	150	1·4
1914	123,934	229	1·8	1920	136,546	242	1·7
1915	114,181	221	1·9	1921	123,201	250	2·02
1916	109,942	185	1·6	1922	115,085	228	1·9
1917	97,441	165	1·9				

IRELAND.

1912	101,035	215	2·1	1917	86,370	167	1·9
1913	100,094	193	1·9	1918	87,304	160	1·8
1914	98,806	214	2·1	1919	89,325	155	1·7
1915	95,583	203	2·1	1920	99,536	252	2·5
1916	91,437	212	2·3				

for the ten years 1912 to 1922 inclusive. England is far and away the highest with an average death-rate of 3·3 per 1000. Scotland is lowest with a rate of 1·6 per 1000, and Ireland very near with a death-rate of 2·0 per 1000. Scotland and Ireland together have an average for the period of 1·8 compared with that of 3·3 for England. These figures, when compared with the corresponding number of births, bring to light the interesting observation that, as a general rule, the higher the birth-rate the greater is the individual maternal death-rate from sepsis. The average number of births per annum in the three countries over the same period is as follows:—

England	351,256	Ireland	94,498
Scotland	115,329		

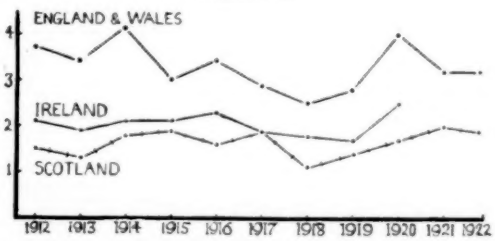
The remarkable rise in death-rate in the year 1920 which appears in all countries is reflected also in the total number of births, which shows a sudden increase after the fall during the years of the late war. The same fact is demonstrated in the English statistics over a longer period. The birth-rate in England is slowly declining, and with the fall there has been a slight diminution in the number of deaths from sepsis.

Years.	Births (average) per annum.	Maternal death-rate per 1000 (puerperal sepsis).
1883–1892	632,300	3·64
1892–1902	638,271	3·26
1912–1921	351,256	3·30

Ireland and Scotland consist largely of rural communities, contrasted with the thickly populated industrial areas spread over the greater part of England, and one cannot help but think that this may be one of the general causes which are responsible for the variation in the three countries.

The factors which govern the incidence of sepsis are chiefly centred in the large areas of population, and although ideal midwifery may be practised and taught in the large institutions, the great part of maternity practice in England to-day falls on the shoulders of the family practitioner, the midwife, and, I am afraid, the "handy-woman," who still, "sub rosa," plies her trade. In Birmingham, where my impressions have chiefly been gained, puerperal sepsis is all too common, just as it is in other large communities, although Birmingham compares very favourably with the country as a whole. In the year 1923 the notifications of puerperal fever in Birmingham numbered 185 (9·6 per 1000 births) and the deaths from this cause registered 34 (1·7 per 1000 births). Both notifications and deaths, however, are but a very rough index of the actual incidence of sepsis, inasmuch as the former do not include a very large quota of recoveries, and the latter only record the tragedies. In other words, a great number of cases undoubtedly occur which never see any register, but which help at a later date to swell the gynæcological out-patient departments and the consulting-room. Many a time have I been asked whether such and such a patient with pyrexia of

CHART 1.



Deaths from puerperal sepsis per 1000 births from 1912 to 1922.

101° F. or over, and a pulse-rate of 120, should be notified as a case of "puerperal fever." My reply is that it is always advisable to consider serious morbidity in the parturient woman as due to sepsis, and that notification should always follow the demonstration of a streptococcus in a uterine swab. In other words, it is obligatory to make a bacteriological examination if the question of sepsis should arise, just as a swab is taken from the pharynx in the diagnosis of diphtheria.

FACTORS CONCERNED.

I have referred to certain factors in the incidence of puerperal sepsis which preponderate in towns as compared with the country. What are these factors? One is undoubtedly the squalor and dirt in which

many town-dwellers live, aided and abetted by overcrowding. Another is the bustle and rush which characterises the busy practice of the town practitioner. With a daily visiting list of 40 or 50 it is impossible to give the attention and detail to every midwifery case that is so essential to avoid sepsis every time. A third is the large number of cases which to-day are being attended by midwives, or by a doctor and midwife with the proviso that the doctor shall only be called in when necessary. This statement will probably be challenged, but I have been very much impressed during the last year or two by the number of cases of severe uterine sepsis to which I have been called by the practitioner after he in turn has been consulted by the midwife who delivered the patient.

The introduction of the Midwives Act in England in 1903 has, in my opinion, not been attended by the subsequent diminution of puerperal sepsis which might reasonably have been expected. Table II. and Chart 2

TABLE II.—*Extract from Registrar's Report for England and Wales.*

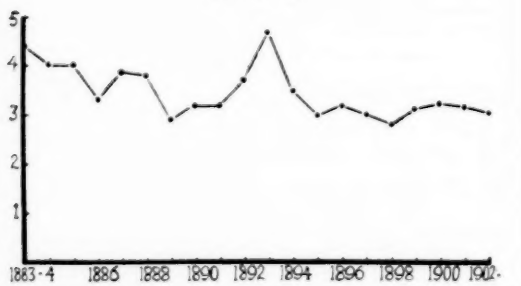
Year.	Births.	Deaths.*	Rate per 1000.	Year.	Births.	Deaths.*	Rate per 1000.
1883	610,676	2701	4·4	1893	644,938	3094	4·7
1884	631,783	2580	4·0	1894	632,538	2257	3·5
1885	628,999	2534	4·0	1895	636,130	1927	3·0
1886	638,168	2160	3·3	1896	654,796	2123	3·2
1887	631,808	2521	3·9	1897	625,249	1898	3·0
1888	640,154	2457	3·8	1898	612,288	1767	2·8
1889	647,574	1909	2·9	1899	632,588	1973	3·1
1890	615,531	2016	3·2	1900	627,848	2017	3·2
1891	632,940	2069	3·2	1901	650,649	2079	3·1
1892	645,368	2439	3·7	1902	666,687	2003	3·0

* Deaths from puerperal fever.

Causes of death.	1901.	1902.
Puerperal septicæmia	1490	1464
Puerperal pyæmia	37	54
Phlegmasia alba dolens	74	95
Puerperal fever (not otherwise defined)	478	390
	2079	2003

show the incidence of deaths from puerperal sepsis per 1000 births for the 20 years previous to the introduction of the Act. Compare this with the results of Chart 3 (last ten years). I think it will be agreed that there is little change. The same

CHART 2.



Deaths from puerperal sepsis in England and Wales per 1000 births from 1883 to 1902.

applies to the application of the Midwives Act for Scotland, which came into force Jan. 1st, 1916 (compare Table I.).

THE MIDWIFE.

The midwife, generally speaking, is an excellent woman who does her best for her patient, but the short training she receives prior to examination for the C.M.B. diploma cannot and does not ingrain in her the practical essentials of asepsis and antisepsis. It takes the medical student at least five years and members of the nursing profession three years in which to absorb the practical knowledge, and yet we grant many an uneducated woman a certificate to practise midwifery after a few months' theoretical training and a negligible amount of practical experience. The only proviso is that she shall call in medical aid under certain conditions, one of which is the occurrence of pyrexia—truly closing the door when the horse has escaped!

The trained nurse who takes the C.M.B. diploma is a very different proposition, especially if she has been surgically trained. Surgical cleanliness is a part of her unconscious self, and one cannot help wishing that the C.M.B. qualification had been reserved as a higher degree, so to speak, for the nursing profession. The trained "district nurse" who attends maternity cases is a very valuable asset to the medical profession and the public, and she should be encouraged to the exclusion of the uneducated and poorly trained individuals who to-day flourish in the big towns, and appear to make a very lucrative income from maternity practice in the working-class areas.

MATERNITY HOMES.

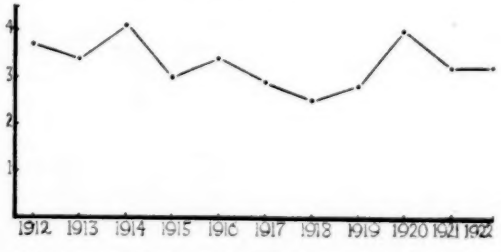
Whilst on the subject of the maternity nurse another point calls for consideration, and that is the maternity home. In many of the large towns in England, and perhaps here also, numbers of so-called "maternity homes" are springing up into which women are taken for the purpose of their confinement. These places are usually presided over by a woman who is protected by a C.M.B. diploma, and either she or her staff conduct the labour. The "home" is frequently nothing more than an ordinary poorly furnished house, and no medical aid is solicited unless something goes wrong. I have frequently seen grave cases of puerperal sepsis in such places, many of which are none too clean, and where I have no doubt that far more "obstetric meddling" goes on than is conducive to the good of the patient.

It is one thing to train a woman for the C.M.B., but it is another to educate her in the proper equipment and management of a nursing home, as I have pointed out in a recent letter to THE LANCET.[1] A remedy lies in the *registration and periodical inspection of all nursing homes where maternity patients are taken.* Reputable institutions would welcome the recognition, whilst less desirable places would automatically disappear.

THE "EXTERN" MIDWIFERY CHARITIES.

That it is possible to prevent puerperal sepsis, given the necessary personnel and care, even *in the homes of the very poor*, is shown by the annual reports of the various extern midwifery charities. Recently I have perused the annual reports of the Rotunda, Liverpool, Manchester, Sheffield, and other maternity "extern" departments, and it is very refreshing to note the low incidence of maternal morbidity which attends the extern midwifery practice of the large hospitals in these centres. At my own hospital, the General Hospital, Birmingham, an extern midwifery department was opened last year. The "district" comprises the very worst slums in the city and is under the charge of my assistant, Mr. A. B. Danby, an obstetric house surgeon, a maternity sister and two trained nurses, and the students of the hospital. The maternal morbidity based on the B.M.A. standard is 1·2 per cent.

CHART 3.



Deaths from puerperal sepsis in England and Wales per 1000 births from 1912 to 1922.

[1] THE LANCET, 1923, ii., 1278.

for the year, a very satisfactory figure when consideration is taken of the patients' surroundings and the absence of most of the various obstetric luxuries which are sometimes thought essential for the prevention of sepsis. Most of the usual obstetric complications have been encountered, and I think that the main factor in the prevention of sepsis has been the care bestowed in the antenatal clinic.

ANTENATAL WORK.

There is no doubt about the importance of careful routine antenatal work under proper medical supervision as a factor in preventing puerperal sepsis. In the "extern" clinic at the General Hospital, Birmingham, every pregnant woman is examined at least once towards the end of her pregnancy by the honorary assistant obstetric officer. Malpositions are then corrected, the pelvic and abdominal measurements noted, and a swab taken from the cervical canal. Should streptococci be isolated from the latter, an autogenous vaccine is prepared and administered to the patient before the onset of labour. Careful notes are taken by the obstetric dressers on separate case-sheets for each patient, and these are filed for reference when labour commences. The actual labour is attended by the obstetric dresser, supervised by the maternity sister or one of her staff. It is the duty of the nursing staff to impress upon the student the antiseptic ritual as applied to obstetric practice in domestic surroundings, and also to prevent unnecessary vaginal examinations. As a rule one examination only is permitted during labour. The nursing staff attend with the students during the puerperium and take the usual steps to prevent infection after labour. In other words, it is the general aim to impress upon the students the fact that labour is a physiological and not a pathological process, and that pathological complications are to be dealt with before rather than during labour.

It is not to be expected that the knowledge, care, and experience requisite for efficient antenatal work can be exhibited by midwives with their brief period of training. The responsibility should not be shouldered by them, and I hope that the day may come when every prospective mother will have the advantage of a careful examination by a medical practitioner before her labour, even though a midwife actually officiates at the latter. What can be accomplished in the prevention of sepsis in the "extern" districts of hospitals should with some organisation be possible for other members of the community.

SPECIALISM FOR THE GENERAL PRACTITIONER.

Is it too much to hope for the evolution of "practitioner obstetricians," specialists in their own sphere, who in the area where they practise are responsible for the obstetric work of their district, and who do nothing else? Such obstetricians should receive generous remuneration from the State Insurance funds, and in addition to their own midwifery practice should act as supervisor of the midwives' cases in the same area. Surely by means of coöperation and coördination amongst practitioners such a step is possible.

The general practitioner with his multifarious duties would probably be only too glad to relinquish the additional responsibilities and trials of a large obstetric practice. General practice and midwifery do not easily assimilate, and the busy practitioner is, I think, to be congratulated on the fact that taking all the difficulties into consideration his results are as good as they are.

AUTO-INFECTION.

I wish in the next place to direct your attention to the consideration of an aspect of the problem which appears to be somewhat neglected. I refer to the question of auto-infection. When "puerperal fever," so-called, occurs, the tendency is generally for mutual recrimination to take place between the doctor, the nurse, and the patient's relations, and in the end I am afraid that the doctor is as often as not saddled with the whole blame for the débâcle. Although no doubt a large amount of infection is introduced from without, or carried up to the cervix from the vulva or perineum by the examining finger, I am not prepared to admit that the onus of infection is by any means always to be laid at the hands of the medical or nursing professions.

During the last few years I have repeatedly been asked in consultation to see patients where the doctor and nurse have both emphatically informed me that no vaginal examination has ever been made, and I believe them. In many cases, in fact, the child has been born before the arrival of any assistance, and yet puerperal streptococcal septicæmia has occurred. Where and how has the infection arisen? Had the doctor been so unfortunate as to use forceps in one of these cases, the blame would naturally have been laid at his door. That auto-infection does occur was recognised by Semmelweiss in 1861, who stated, "In rare instances the decomposed animal organic material which causes child-bed fever when absorbed is produced in the patient herself." Ahlfeld and Kaltenbach (1883–89) first put forward the suggestion that pathogenetic bacteria are present in the lower genital tract of many healthy pregnant women and that they may cause puerperal infection. A considerable amount of work has been done since, both with regard to the bacteriological investigation of the vulva and vaginal secretions during pregnancy, and of the lochia after labour. To a certain extent the conclusions are contradictory. Generally speaking, the weight of evidence is in favour of streptococci, both hæmolytic and non-hæmolytic, being present in varying proportions.

Whitridge Williams, however, after carefully sifting the evidence for and against auto-infection, expresses himself in the following terms: "In the first place, it appears that the vaginal secretion of normal healthy pregnant women does not contain streptococci which grow upon ordinary agar. On the other hand, the preponderance of evidence indicates that in a varying proportion of patients it does contain streptococci which grow readily in glucose bouillon. Furthermore, it is probable that the incidence of the latter depends in great part upon the personal cleanliness of the patient; and finally there is no evidence that the presence of such streptococci plays any part in the production of puerperal infection." This last statement is based upon the observations that in cases where streptococci have been demonstrated the puerperia have subsequently proved to be afebrile.

In the antenatal clinic at Birmingham General Hospital the taking of a swab from the cervix is part of the routine examination of patients. When streptococci are isolated the women are kept under close observation, and a research is at present in progress to ascertain whether the cocci tend to disappear as the pregnancy advances and whether they can be detected subsequently in the lochia.

Bacteriological Results in 50 Swabs.

The bacteriological results recorded in the last 50 cervical swabs by my assistant, Mr. A. B. Danby, and Dr. W. T. Hillier, bacteriologist to the hospital, are as follows:—

Organisms.	Number.	Per cent.
None on culture or film	3	6
,, ,, but + to film	27	54
,, film but culture +	3	6
Streptococci on culture	5	10
,, film	2	4
Staphylococci on culture	18	36
,, film	7	14
Diplococcus on film (Gram +)	1	2
Coliform bacilli on culture	2	4
,, ,, film	10	20
Gram + bacilli on culture	3	6
,, ,, film	30	60
Diphtheroid bacilli on culture	2	4
,, ,, film	15	30
Sarcinæ bacilli on culture	3	6
,, ,, film	1	2

Inasmuch as the puerperia in the extern patients have been afebrile in 98·6 per cent., it appears probable that the streptococci isolated are non-pathogenic.

No definite conclusion, however, can be reached until the investigation has been in progress over a long period and many hundreds of cases have been observed.

Attempts have been made from time to time to demonstrate that the streptococcus of virulent puerperal infection—i.e., true "puerperal fever"—is specific. Krönig, Williams, and Schotmüller, for example, have isolated an anaerobic streptococcus which is designated *Streptococcus putridus*, and which they affirm is more frequently concerned in the production of puerperal infection than the ordinary aerobic group. Mackey, on the other hand, claims to have isolated an organism of such definite morphological appearance that he associates it always with puerperal infection, and is able to pick it out from streptococci obtained from other sources. He calls it *Streptococcus puerperalis*. The work awaits confirmation, and in the meantime it appears advisable to regard all streptococci in the genital tract of the parturient woman as potential sources of infection.

INFECTION BY BLOOD-STREAM.

I turn to another question—viz., can puerperal infection arise from a septic focus elsewhere in the body by infection of the uterus via the blood-stream? The question is prompted by the following three cases, which I select as examples bearing on the point.

CASE A.—A primipara of good social position had suffered from chronic inflammation of the maxillary antrum for two years before pregnancy occurred. During the early months of gestation suppuration in the antrum appeared to be probable, but operation was deferred owing to the coexisting physiological condition. Labour took place at the patient's home under ideal conditions. A senior and experienced practitioner was present, with a fully-trained nurse. No vaginal examinations were made either before, during, or after labour, and the placenta was expelled naturally from the vagina. The patient had not previously suffered from any vaginal discharge or pelvic symptoms. Pyrexia occurred a few days after labour, and owing to coexisting headache, &c., it was thought that the maxillary antrum might be the cause of the high temperature. A surgeon was called in and he drained the antrum, evacuating pus. The pyrexia did not subside, however, and a complete bacteriological investigation was then made. Three swabs from the uterus and the blood all showed the same streptococcus. The urine was sterile. The weak link in the chain is that the ear and throat surgeon did not have the pus from the antrum examined bacteriologically.

CASE B.—A multipara in the heart of the country in the Midlands was delivered naturally at her cottage of a healthy full-term child and placenta before the arrival of either practitioner or district nurse. Her husband only was present at the time. The previous pregnancies had been normal and the puerperia uncomplicated. The patient had suffered from chronic otitis media for some years. Septicæmia developed within three days from the confinement. A uterine swab and also a blood culture showed a streptococcus. The patient died in hospital 14 days later with a cerebral abscess. At the autopsy the uterus presented the typical signs of septic endometritis and metritis.

CASE C.—A primipara of good social status during the later months of her pregnancy developed nephritis. Albumin and streptococci were present in the urine. Labour took place in a first-class nursing home under the supervision of a skilled consulting obstetrician. In spite of all care and precautions, streptococcal septicæmia followed the labour with a fatal result. This case is, of course, open to the criticism that owing to the presence of streptococci in the urine an ascending infection of the genital tract may have occurred, in spite of the precautions taken.

Examples such as I have cited naturally direct thought in one direction. Apart altogether from obstetrics we are familiar with the results of a chronic bacteriemia. Instances may be mentioned of acute pyelitis supervening upon a suppurating tonsil, chronic pyæmic abscesses occurring in a patient with a suppurating maxillary antrum, or iritis relieved by the extraction of carious teeth, with alveolar sepsis.

It is not a great step, therefore, to trace the development of uterine sepsis in the placental site of a patient who is the subject of a chronic suppurating focus. It is reasonable to suppose that streptococci under such conditions may take a fresh lease of life both in virulence and morphological characteristics. We have only to compare the activities of the coliform group of bacteria under similar circumstances. That bacteria are brought to the uterus by the blood-stream has been shown conclusively by Whitridge Williams, who, in fatal cases of influenzal pneumonia, demonstrated the presence of chains of streptococci in arterioles *making their way through the uterine musculature to the decidua*. Czemetschka and Burchardt also have reported the presence of pneumococci in the uterine lochia, as a manifestation of a general septicæmia originating from a focus outside the generative tract.

It is not possible to go further at this stage. In passing, however, may I draw attention once more to the very high mortality-rate from puerperal sepsis in all countries in the year 1920, and raise the question as to whether some of the mortality may not have been a blood infection and related to the influenza epidemics? The practical consideration that evolves from the discussion is, to my mind, the importance of treating carefully and thoroughly any septic focus that may be present during pregnancy, rather than deferring the same until a later period.

TREATMENT OF PUERPERAL SEPSIS.

I am afraid that I have left very little time for a discussion of therapeutic methods. My excuse is that the best treatment of puerperal sepsis is its prevention. I do not propose to enter into a full account of all the various measures that have been vaunted from time to time, but simply to refer to the methods which in my hands have given the best results. At the outset it must be remembered that many cases undoubtedly will recover whatever treatment is adopted, and, on the other hand, some patients are lost in spite of the application of every measure which we know to-day.

General Principles.

In order to obtain the best results, however, certain principles must be adopted. The first of these, in my opinion, is that treatment must be started at the earliest possible moment. It is no good waiting until the symptoms have persisted for several days in the hope that the temperature and pulse-rate will subside. If this is the case, all well and good, but if the contrary is true valuable time has been lost and the chances of the patient's recovery jeopardised. I know the argument will be raised that there are other causes of pyrexia than puerperal sepsis, and that in many cases alarming symptoms subside naturally without producing any further trouble. This is so. I prefer, however, to regard any rise of temperature to 101° F. with a corresponding increase of pulse-rate to 110 or over as a manifestation of sepsis until the contrary is proved, and under these circumstances I always counsel the bacteriological investigation of the uterine cavity by examination of a swab.

The second principle is that it is unwise in the interests of the patient to differentiate between sapræmia and septicæmia, or again to depend upon the superficial characteristics of the uterine lochia. The former in practice merges so easily into the latter, and both foul-smelling, purulent, and serous discharges equally may contain dangerous streptococci that the issue is only obscured if any reliance is placed upon the same in forming a diagnosis.

The third important factor is that the patient shall be in surroundings where efficient nursing is possible, and where it is carried out by a properly trained nursing staff. It is perhaps impossible under all circumstances, but my own practice, whenever feasible, is to transfer the case to hospital or nursing home. As to the details of actual treatment, the measures adopted should, in my opinion, be both local and general. I always adopt the same routine which is as follows:—

Local Treatment.

The patient is anæsthetised and placed in the lithotomy position. The external genitals are shaved if this has not already been done, and thoroughly cleansed with a solution of sodium hypochlorite. The preparations I personally use are either "Milton" or

Burroughs and Wellcome's "Tolamine." The vagina is next swabbed out and finally the cervix and uterine cavity, a large quantity of hypochlorite solution being used during this procedure. The uterine cavity is then *lightly* curetted and a large double drainage-tube introduced into the uterine cavity and carried to the fundus of the organ. This tube is sufficiently long for the ends to be brought outside the vulva, and is used for repeated irrigation of the uterine cavity with the hypochlorite solution. The uterus is washed out every two or three hours by the nurse in attendance, who syringes the solution through the tubes.

I am fully aware that this local treatment of the septic uterus has been subjected to criticism. The curette, whether it be sharp or blunt, has been denounced as an instrument which conveys the infecting organisms deeper into the uterine tissues and opens up fresh channels of infection. I can only say that *curettage in the constant presence of a powerful antiseptic* has not, in my personal experience, ever done one atom of harm, and further, it has on several occasions undoubtedly done good by removing retained decomposing portions of placenta or membrane. It is also only right to state that constant or frequently repeated irrigation of the septic uterus is also not generally adopted. Gordon Luker, in fact, in a recent communication, observes that at Queen Charlotte's Hospital he has not observed any particular advantage from the adoption of Carrel-Dakin methods, and in recent cases has been devoting less and less attention to the local uterine conditions. I am entirely open to conviction on these two debatable points, but as long as the results of treatment remain satisfactory in my hands I do not feel inclined to change my technique. The important point, I believe, is that curettage *must be light*, and it *must be associated with constant irrigation* of the uterus. If *heavy* and *employed alone it is undoubtedly dangerous.*

Up to date I can claim a consecutive series of 62 cases of severe puerperal sepsis with only five deaths. In this series a uterine swab showed infection with a streptococcus either alone or as a mixed infection, and no case is included in which the pulse-rate did not reach 120. A further point is worth placing on record, and that is that two of the five fatal cases were neither curetted nor irrigated. Serum- and vaccine-therapy alone was employed.

One other remark in connexion with irrigation: if it is adopted at all no half measures will suffice. The vaginal douche, or the single intra-uterine douche, only washes away such discharge as happens to be present at the moment and can in no sense be curative.

General Treatment.

The general treatment of a septicæmic patient in my hands resolves itself into the application of the following measures: (*a*) Serum-therapy; (*b*) autogenous vaccines; (*c*) intravenous "acriflavine" with (*d*) a concentrated and nutritious diet, and a liberal allowance of alcohol. Since the publication of Luker's paper I am testing the value of intravenous and intramuscular solutions of quinine bihydrochloride as recommended by him, but cannot as yet express any considered opinion, as the method is too recent. Intravenous injections of Witte's "peptone" have not, in my hands, proved of sufficient value to replace or add to other measures. Anti-streptococcic serum is best given, I think, intravenously, in large doses, with an equal quantity of saline as advised by Leith Murray. I administer an initial dose of 50 c.cm. of stock serum with 50 c.cm. of normal saline and 1 c.cm. of serum from a freshly-killed guinea-pig. The latter is added in order to introduce "complement" as suggested by Leith Murray. On each of the two following days 30 c.cm. of serum is given with an equal amount of saline, the injection on each occasion being administered very slowly. Autogenous vaccines are used in conjunction with other measures, but I should not care to rely upon vaccine-therapy only in a severe case of puerperal systemic infection. I cannot claim to have witnessed any very dramatic results in acute cases of sepsis treated only by vaccine, and on the other hand, I can recall three deaths. Perhaps I have been unlucky.

Acriflavine in a strength of 1 in 250 in normal saline I have now used for some years in the treatment of puerperal sepsis, and I think that it does good. In severe cases it is given intravenously in doses of 20 c.cm. morning and evening. In a few instances the daily injections have been continued for over a fortnight until the patient's skin has assumed a lemon tint. The urine in these cases has shown clear evidence of the treatment. One patient was treated solely by this method and made an excellent recovery, although the infection originally appeared to be of a very virulent type. The disadvantage attached to these repeated injections is the discomfort attached to the treatment. Patients often complain very bitterly about the continued punctures, especially after several days. I think that I have said sufficient to render it evident that we possess no one specific in dealing with severe sepsis once the infection has secured a firm hold of the individual. As I have noted previously, cases occur where the infecting agent is so virulent that the patient is dead almost before treatment can be instituted. I remember one such instance some years ago. I was called to see a primipara confined 24 hours previously who had a temperature of 104° F. She was covered with an erythematous rash and died the following morning within 48 hours of the labour. A diplococcus, apparently the pneumococcus, was present in the blood.

In conclusion, therefore, may I repeat the words that I have already used—viz., that with our present knowledge, it is far better to prevent puerperal fever than to attempt its cure. Whilst acknowledging the debt we owe to therapeutics in reducing the mortality from puerperal sepsis, the problem of prophylaxis appears to offer less difficulties in the attainment of success.

THE TREATMENT OF SEVERE GASTRIC AND DUODENAL HÆMORRHAGE.[1]

By ARTHUR F. HURST, M.D. Oxf., F.R.C.P. Lond.,
PHYSICIAN TO GUY'S HOSPITAL.

The Mortality from Gastric and Duodenal Hæmorrhage.

I BELIEVE that hæmorrhage from gastric and duodenal ulcers is far less often fatal than is generally supposed. I have never had a case under my care in which death resulted, although I have only once had to call in the aid of a surgeon to save the patient's life. Dr. J. J. Conybeare has investigated the records of all post-mortem examinations on cases of fatal hæmorrhage from an ulcer of the stomach and duodenum in the absence of cirrhosis of the liver, which occurred at Guy's Hospital between the years 1911 and 1920 inclusive. The total number was only 23, which is equivalent to 2·6 deaths a year, if allowance be made for the fact that no post-mortems were made on 12 per cent. of patients dying in the hospital. The deaths from this cause accounted for no more than 0·37 per cent. of the 6302 autopsies performed during the ten years. Only 13 out of the 23 died from hæmorrhage without having undergone some previous operation. As about 600 cases were admitted during this period for hæmorrhage from an acute or chronic ulcer, the mortality of severe gastric and duodenal hæmorrhage is only about 2·5 per cent.

Medical Treatment of Hæmatemesis.

The most important factor favouring the cessation of hæmorrhage from the stomach or duodenum is complete immobility. Immobility of the patient keeps the blood pressure down; immobility of the stomach and duodenum prevents a newly-formed clot from being dislodged. Distension of the stomach

[1] A contribution to a joint discussion at the Medical, Surgical, and Therapeutic Sections of the Royal Society of Medicine. A short abstract of this paper and a report of the discussion appeared in THE LANCET of March 15th.

and duodenum removes the support of surrounding tissues from the bleeding vessels and keeps the aperture in its wall widely open. An empty, contracted stomach, like an empty, contracted uterus, has no lumen, and its effect on hæmorrhage is the same. It reduces the flow of blood through its blood-vessels, and it controls the hæmorrhage by the direct pressure of the opposite wall of the viscus on the bleeding surface.

Immobility of the patient is secured by keeping him quiet in bed, reassuring him about his condition —a very important point, too often neglected, especially in hospital—and giving him sufficient morphia by repeated subcutaneous injections to keep him drowsy and prevent the mental and physical restlessness which are otherwise likely to be present. Atropine should be added to the morphia in order to inhibit as much as possible the secretion of gastric juice.

Immobility of the stomach and duodenum is secured by giving the patient neither food nor drink by mouth. Complete starvation should be continued until, so far as can be ascertained, no bleeding has occurred for 48 hours. The ordinary strict treatment of an ulcer with diet, alkalies, belladonna, and olive oil should then be begun. During the period of starvation the mouth should be kept scrupulously clean; there is then no danger of parotitis. As much dextrose solution as possible should be given by rectum, and if the mouth is parched and the patient shows signs of being dehydrated, saline solution should be injected subcutaneously. There is no object in giving ice to suck. To the stomach blood is as much a food as any other protein, so that gastric juice is secreted and peristalsis occurs as actively as with an ordinary meal. When the hæmorrhage is severe, the rapid distension of the stomach results in its more or less complete evacuation by hæmatemesis. This is followed by contraction of the stomach, which may cause the hæmorrhage to cease. Smaller quantities are evacuated in the ordinary way through the intestines and give rise to melæna. But when the hæmorrhage is severe and continues after hæmatemesis has occurred, or when in spite of its severity it is not sufficiently rapid to cause the sudden distension which results in its ejection by mouth, death may result unless steps are taken to empty the stomach. It is common knowledge that uterine hæmorrhage can almost always be arrested by emptying the uterus and causing it to contract; it is less widely known that similar treatment for severe gastric hæmorrhage is almost equally effective.

A stomach-tube is passed just far enough for the end to reach beyond the cardia. This prevents any possibility of directly disturbing the bleeding surface. The stomach is now emptied; this can be most conveniently done by having the tube connected with a Senoran's evacuator. The stomach is next washed out with about 4 ounces of ice-cold water, and this is repeated over and over until the water which comes back is no longer blood-stained. Instead of water, 1 in 1000 ferric chloride solution,[2] also iced, can be used, as its styptic action may help to arrest the bleeding. When the last traces of water have been evacuated, a drachm of 1 in 1000 adrenalin chloride is poured into the stomach before withdrawing the tube. This may now gain access to the bleeding surface and cause the leaking vessel or vessels to contract. It is particularly likely to be effective in acute ulcers, and in the condition called gastrostaxis by Sir William Hale-White, in which there is general oozing, presumably from innumerable minute erosions. When given in the ordinary way by mouth, the adrenalin is so diluted by the contents of the stomach that the trace which reaches the bleeding surface must be quite ineffective. There need be no fear that the general blood pressure will be raised and that the danger of a recurrence of hæmorrhage will thereby be increased, as adrenalin given by mouth is not absorbed, and has no effect at all on the blood pressure.

[2] Daily lavage of the stomach with 1 in 1000 ferric chloride solution was the routine treatment for gastric ulcer recommended by Bourget, of Lausanne, 20 years ago.

Arrest of Hæmorrhage.

The complete evacuation of the stomach and the stimulation of the mucous membrane with ice-cold water result in firm contraction of the whole organ, and the hæmorrhage is almost invariably arrested if it is gastric in origin. Duodenal hæmorrhage also generally stops, because the duodenum has no longer to deal with blood mixed with acid gastric juice coming to it from the stomach, and both the iced ferric chloride solution and the adrenalin may now reach the ulcer. Hæmorrhage ceases when a firm clot has formed at the bleeding-point. The danger of recurrence depends upon the digestion of the clot by gastric juice, the secretion of which is called forth by blood just as it is by any other food. Consequently, it is essential to render the gastric juice inactive by neutralising as completely as possible all the free hydrochloric acid which is present. For this purpose alkalies must be given which do not, like sodium bicarbonate, stimulate the secretion of more juice after neutralising an equivalent amount of acid, or give off large quantities of carbon dioxide, which distends the stomach and stimulates peristalsis. Oxide of magnesia is almost ideal from these points of view, as it has four times the neutralising power of sodium bicarbonate, it is a comparatively feeble stimulant of gastric secretion, no gas is given off when it combines with acid, and it also acts as a mild aperient and so tends to prevent the severe constipation and resulting putrefaction of blood in the colon, which is the cause of the frequent pyrexia after a severe gastric or duodenal hæmorrhage. Calcium carbonate is also useful, as it has two and a half times the neutralising power of sodium bicarbonate, it does not stimulate the secretion of gastric juice at all, and it neutralises the acid so slowly that the gas given off dissolves in the water present as rapidly as it forms, so that no distension results. Possibly some of the calcium chloride produced may be absorbed and increase the coagulability of the blood. Bismuth carbonate has only one-third of the neutralising power of sodium bicarbonate and it causes the stools to be black, so it is best avoided, as the naked-eye examination is a rough indication as to whether the hæmorrhage is stopping.

Oxide of magnesia can be most conveniently given as emulsio magnesiæ (B.P.C.), each drachm of which contains 5 gr. of oxide. A mixture is made containing 30 gr. of prepared chalk to each ounce of the magnesia emulsion. An ounce of the well-shaken mixture is given as soon as possible after the hæmorrhage and then hourly during the day, and as frequently as the patient is awake during the night. This is continued until food is begun, when it can be replaced by the usual alkaline powders given half-way between the two-hourly feeds.

In all cases septic foci should be carefully looked for and thoroughly eradicated at an early stage of convalescence; if the ulcer is an acute one no other after-treatment is required.

At the earliest possible moment after a hæmorrhage, the patient's blood should be grouped and a donor should be found who can be summoned at an hour's notice any time during the day or night should transfusion become necessary. If this precaution is taken no patient should die as a result of hæmorrhage from an acute ulcer, or as a result of the general oozing from the mucous membrane in gastrostaxis. Fatal hæmorrhage from a chronic ulcer should also hardly ever occur, as in the most severe cases, where a sclerotic artery incapable of contracting has ruptured, transfusion should tide the patient over sufficiently long for it to be possible to deal directly with the ulcer by operation. The only inevitably fatal cases are the extremely rare ones, in which death occurs actually during the first hæmorrhage, generally owing to erosion of one of the main gastric or duodenal vessels.

The hæmoglobin percentage should be estimated at the same time as the blood is taken for grouping. Daily estimations should be made until the patient is obviously out of danger. When further hæmorrhage is suspected, although no hæmatemesis has occurred,

an additional estimation should be made, as a fall in the percentage would confirm this and indicate the wisdom of washing out the stomach. On the other hand, if the hæmoglobin percentage remains unaltered or rises, it is clear that no further hæmorrhage has occurred. Transfusion should be carried out at once if the hæmoglobin percentage falls to 30.

Every practitioner may at any moment be called upon to treat a case of severe hæmatemesis. There are few conditions in which life and death depend so directly upon the treatment he adopts. I believe that a fatal result will be extremely rare if treatment on the lines I have laid down is carried out. It is perhaps necessary to point out that for its success to be assured the practitioner must be adequately equipped. He should have in his possession a stomach-tube with a Senoran's evacuator. He should have an accurate hæmoglobinometer, which he is in the habit of using for the diagnosis and control of his cases of anæmia. It is one of the instruments of precision which are easy to use, require very little time, and which ought not to be regarded as a specialist's toy, which nobody but the hæmatologist should be expected to use. There should also be at least one man in every district who can group a specimen of blood and carry out a transfusion. Only six months ago I found that there was nobody in a certain city with 50,000 inhabitants who could do this, and I wondered how many lives had been lost in consequence. Lastly, I hope the time is not far distant when London and every large town will have a list of blood donors, properly grouped, who can be called upon in emergencies, when no suitable relation or friend is available.

When the bleeding has stopped, the percentage of hæmoglobin quickly rises in most cases. In a recent case under my care it rose from 20 to 60 per cent. in 11 days. Iron given by mouth or subcutaneously does not seem to have much effect in hastening the blood regeneration, and arsenic is of still less use. When improvement is slow the patient should be transfused. This not only produces an immediate rise of between 5 and 10 per cent. of hæmoglobin, but it almost always stimulates the delayed blood formation. The general improvement in the patient's condition seems also to hasten the healing of the ulcer, which sometimes tends to be very slow in cases of this kind.

Indications for Immediate Surgical Treatment.

In view of the very small danger of death from hæmatemesis or melæna, it is clear that operation can very rarely be called for with the immediate object of arresting the hæmorrhage. Dr. Conybeare found that in seven of the thirteen cases of hæmorrhage from a gastric or duodenal ulcer, in which death occurred without previous operation at Guy's between 1911 and 1920, the ulcer producing the hæmorrhage was definitely of the acute type—five times in the stomach, once in the duodenum, and once in both stomach and duodenum. In none of the seven cases was there any history which would have justified surgical intervention at an earlier date. One patient had delirium tremens three months before death, and in two other cases the acute ulceration was associated with a lung abscess and gall-stones respectively. It may be safely concluded that in none of these seven cases would any operation on the stomach or duodenum have been successful in preventing death, even if undertaken at the time of the hæmatemesis. In only three of the six cases of chronic ulcer, which died from hæmorrhage apart from operation during the same period—or 0·5 per cent. of admissions from hæmatemesis and melæna—was there a history which could have distinguished them from the acute cases; in none but these could an operation have been reasonably undertaken with some hope of saving life. Quite apart from the very small danger of death from hæmorrhage —2 per cent. at Guy's—the immediate results of operation performed for its direct treatment are so unfavourable that I expect most British surgeons will be inclined to agree with American surgeons, who, according to Balfour, are now unanimous that "the danger of succumbing to hæmorrhage is less than the danger of operation during hæmorrhage."

I believe that the only indication for operation in the acute stage is the occurrence of severe and persistent hæmorrhage in an elderly individual with a long history pointing to the presence of a chronic ulcer, whose arteries are so degenerated that they are unlikely to contract sufficiently for satisfactory plugging by thrombosis.

I have only once found it necessary to have an operation performed on account of hæmorrhage from a gastric or duodenal ulcer. I had advised the patient, a man of 60 with severe arterio-sclerosis, to have a gastro-enterostomy the first time I saw him some months before his hæmorrhage, as he had a very long history of duodenal ulcer, which had led to obvious pyloric obstruction. He refused to submit to surgery, and continued to wash his stomach out two or three times a day as he had done for years. He then had a severe hæmorrhage which was repeated at the end of a week's starvation, when I saw him for the second time. I advised immediate operation. The next morning Sir Berkeley Moynihan found an enormous duodenal ulcer producing pyloric obstruction; he performed a gastro-enterostomy and cut off the blood-supply to the ulcer by overlapping sutures round it. The patient did very well, and died four years later from pneumonia without having had any recurrence of gastric symptoms.

I have also once had to recommend operation on a man who bled repeatedly from a jejunal ulcer, which had developed as a result of a gastro-enterostomy performed the same time as a perforation of a duodenal ulcer was sutured. A jejunostomy was made and the hæmorrhage ceased, but death resulted from peritonitis owing to the jujunum tearing away from the abdominal wall. All his subsequent misfortunes would probably have been avoided, if the surgeon had been content with suturing the perforation without performing gastro-jejunostomy at the time of the first operation.

Is Hæmorrhage in Chronic Ulcer an Indication for Subsequent Operation?

Before deciding whether the danger of a recurrence of hæmorrhage should be regarded as an indication for operation when the patient has recovered from his acute symptoms, it is necessary to see what the results of surgery are in cases of ulcers which have previously bled, and how frequently hæmorrhage occurs after operations on patients who have never before had hæmatemesis or melæna. According to Balfour, hæmorrhage occurred after operation at the Mayo Clinic in 13 per cent. of cases of ulcer (83 duodenal and 17 gastric) with a history of previous hæmorrhage, but only in 0·9 per cent. of cases with no previous hæmorrhage. This may be regarded as the minimal risk, which requires correction by such statistics as those of Hohlbaum from Payr's University Clinic in Leipzig in which the after-history is taken into account, in order to get an accurate idea of the average risk. Hohlbaum reported in 1922 that no less than 20 per cent. of cases in which a gastro-enterostomy was performed for duodenal ulcer were followed by severe and occasionally fatal hæmorrhage, either immediately or months or even years later. As most of the cases in which hæmorrhage occurred were in patients who had previously bled, the operation is now no longer performed at Leipzig for hæmorrhagic cases. Of the nine Guy's cases between 1911 and 1920, in which death followed hæmorrhage from an ulcer and in which an operation had been previously performed, only two had suffered from hæmorrhage before the operation. In one of these death occurred from hæmorrhage the day after a gastro-enterostomy for a duodenal ulcer, and the other from hæmorrhage from a gastric ulcer three years after the excision of an earlier gastric ulcer. In all the other cases the first hæmorrhage occurred after the operation. The hæmorrhage took place respectively seven days, eight days, and five years after a gastro-enterostomy for gastric ulcer, six days after a gastro-gastrostomy for gastric ulcer, and six weeks after an ileo-sigmoidostomy for gastric ulcer. One of those who died after a gastro-enterostomy had had an ileo-sigmoidostomy

performed two years earlier. Lastly, one patient died of hæmorrhage 14 days after the suture of a perforated chronic pyloric ulcer, and another nine months after suture of a perforated chronic gastric ulcer. As about 900 cases had undergone operation for gastric or duodenal ulcer during the period under review, and nine such cases died of hæmorrhage, the mortality from hæmorrhage after operation is approximately 1 per cent.

I am able to supply further information on this subject from the statistics of New Lodge Clinic. Out of 60 consecutive patients with gastric or duodenal ulcer admitted to the clinic, who had not previously undergone any operation, five of the 16 gastric cases and eight of the 44 duodenal cases had had hæmatemesis or melæna or both, together making 21·6 per cent. Nine of these patients had an operation subsequently performed for their ulcers on account of pyloric or hour-glass obstruction, and one because of failure of medical treatment; the only one who had previously had a hæmorrhage had another severe hæmorrhage the day after the operation.

During the same period 25 patients were admitted for symptoms which had followed an operation performed for duodenal ulcer. Among the 16 of these who had not previously bled, one had a hæmorrhage three days and another four days after the operation, a third had hæmatemesis three years later, and a fourth had repeated severe hæmorrhages from a jejunal ulcer, which had finally to be excised. The remaining nine had had hæmatemesis or melæna before the operation, and in no less than seven it recurred with equal or greater severity afterwards; in two cases a bleeding jejunal ulcer was still present after two additional operations had been performed. Thus, out of 26 cases of hæmatemesis or melæna no less than 11, or 42 per cent., occurred after operation, and of these four had not previously bled. These figures show that the liability to hæmorrhage is just as great after an operation has been performed for a gastric or duodenal ulcer as after medical treatment, whether the patient has already had a hæmorrhage or not.

Is the Danger of a First Hæmorrhage in Chronic Ulcer an Indication for Operation?

The supposed liability to hæmorrhage and the supposed danger of the latter to life are often used as arguments in favour of the operative treatment of gastric and duodenal hæmorrhage. Neilson has investigated the after-history in a series of 182 patients from Prof. Faber's clinic in Copenhagen, who were diagnosed with a fair degree of certainty as suffering from ulcer. An operation was performed on 42 of them between one and 21 years later, but never for hæmorrhage. The remainder were traced for between two and a half and 19 years; of these 16 had died, but only two, or less than 1 per cent. of the whole series, from hæmorrhage.

Dr. Conybeare's investigations on the history of the 23 fatal cases of gastric and duodenal hæmorrhage, which occurred at Guy's Hospital between 1911 and 1920, throw further light on this question from a different point of view. Of the six deaths from hæmorrhage from a chronic ulcer one gastric and one duodenal case had a history of only six and eight weeks respectively, and one patient, an old man of 74, who died from hæmorrhage from a chronic duodenal ulcer whilst in hospital for a fractured femur, had never suffered from indigestion. Only two patients with a long history of indigestion died as a result of hæmorrhage from a chronic gastric ulcer, and one from a chronic duodenal ulcer without having previously undergone any operation; of these the duodenal case and one gastric case had had previous attacks of hæmatemesis and the duodenal case had had melæna.

We may conclude that only two patients with chronic gastric ulcer and one with chronic duodenal ulcer died of hæmorrhage in Guy's Hospital in the ten years between 1911 and 1920, who had had symptoms which should have made a correct diagnosis possible before the occurrence of fatal hæmorrhage, and whose lives might therefore have been saved if an operation had been performed sufficiently early. But when it is remembered that during the same period two patients with a history of hæmatemesis died from hæmorrhage after operation, and no less than seven whose ulcers had never bled before died from hæmorrhage after operation, it is clear that the number who actually recovered under medical treatment, but who might have died after operation if surgery had been the routine treatment for all cases diagnosed as ulcer, would more than have counterbalanced the death of these three patients who might possibly have been saved by an earlier operation.

The statistics collected by Neilson from Faber's clinic are the only previously published ones which supply the same kind of information as Dr. Conybeare's Guy's Hospital statistics, and the conclusions which can be drawn from them are exactly the same. Between 1897 and 1915 528 patients were diagnosed as having a gastric or duodenal ulcer. During the same period ten patients died as a result of hæmorrhage from an ulcer, but four of them had had no digestive symptoms prior to the fatal hæmorrhage. Four others had had slight pain, nausea, or vomiting within the previous six months, but not before; the ninth had had occasional epigastric pains, to which he "had not paid attention" for a couple of years, and the last had had occasional attacks of "gastric catarrh" for six years. In none had there been any previous hæmorrhage, and in none had the symptoms been of such a nature that a definite diagnosis of ulcer could have been made. It is extremely doubtful whether the most enthusiastic surgeon would have operated on more than one or two of them had he seen them at any time before their admission for hæmorrhage.

In view of these results it seems to me that neither the occurrence of hæmorrhage in the past, nor the danger of hæmorrhage in the future in a patient with an ulcer which has not previously bled can be regarded as in any way pointing to the desirability of surgical rather than medical treatment for a chronic ulcer. In my opinion the only definite indications for surgery are hour-glass contraction and pyloric obstruction, neither of which should ever occur if the diagnosis is made as early as it should be, the treatment is sufficiently strenuous and prolonged, all septic foci are thoroughly eradicated, and proper after-treatment is instituted.

References.

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LEBANON MENTAL HOSPITAL.—The annual general meeting of the hospital, situated at Asfuriyeh, near Beyrout, Syria, will be held at Caxton Hall, Westminster, on Tuesday, June 3rd, at 5 P.M. The chair will be taken by Dr. E. W. G. Masterman.

EAST END MOTHERS' LYING-IN HOME.—At the annual meeting held at 46, Park-street, London, W., on May 21st, Dr. Owen Lankester, on behalf of the committee, made a presentation of an illuminated address and a silver cake basket to Dr. M. Cursham Corner, retiring after more than 40 years' service as medical officer to the home. Dr. Corner stated that when the home was first opened it was the only one of its kind in East London for poor mothers. Mrs. Alfred Lyttelton said that, in going round the home, she had been struck by the fact that the mothers of first babies looked happy and at peace, while the mothers of families often appeared anxious and harassed because they were worrying about the other children at home. She pleaded that help should be forthcoming to enable the home to give to poor mothers the skilled attention and some of the comfort and quiet enjoyed by those in happier circumstances. Mr. W. McAdam Eccles, who had visited the home on behalf of the King Edward Hospital Fund, remarked that during last year, out of 1020 mothers delivered in the home, there was only one maternal death (from accidental hæmorrhage) and not a single death among 1262 mothers delivered on the district. He extended a welcome to Dr. Corner's successor, Dr. W. H. F. Oxley.

THE INORGANIC CONSTITUENTS OF THE BLOOD

IN CERTAIN PATHOLOGICAL CONDITIONS.

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(A Report to the Medical Research Council.)

THE inorganic salts of the plasma may be regarded as constituting a Ringer's solution, which must presumably be kept at a fairly constant composition if the life processes are to continue. In this solution circulate the various protein constituents of the plasma, food products in their passage to the tissues, and waste products derived from tissue metabolism. Of recent years these food and waste products have been the subject of numerous investigations: the sugar and urea contents of the blood have, for instance, been extensively studied, and their estimation now plays an important rôle in clinical medicine. The inorganic constituents have attracted less attention. There are, of course, important exceptions to this statement, such as the bicarbonate content of the plasma, which, owing to the development of a simple and rapid method of estimation by Van Slyke, has come to possess a very definite significance in medicine, but it may be safely stated that our knowledge of the variations in the inorganic constituents of the blood is at a lower stage of development than our knowledge of the bodies mentioned above.

The principal reason for this position is to be found in the lack of methods of estimating the inorganic constituents, suitable for clinical application and also adequately accurate. The older methods were laborious, and, in addition, if anything approaching a complete inorganic analysis was attempted, necessitated the use of larger quantities of blood than could be conveniently or justifiably removed from human patients. Simpler and more rapid methods are now available, and it is possible to determine the more important acid and basic radicles in less than 40 c.cm. of blood, a quantity readily obtained by venipuncture.

In this paper some of the results of more than 60 analyses of certain inorganic constituents of the blood are detailed. The material included patients suffering from diabetes, nephritis, toxæmias of pregnancy, decompensated cardiac lesions, and other conditions in which deviation from the normal might reasonably be expected to occur. The substances estimated were: in plasma, chloride, phosphate, and bicarbonate, and in the corresponding serum, sodium, potassium, and calcium. The plasma was separated rapidly by centrifuge with the usual precautions, and the serum removed from the clot within two hours of withdrawal of the blood. Magnesium was not estimated, partly owing to lack of time, and partly to the fact that, in the few papers which have appeared on the subject, no significant variations from the normal have been recorded. Sulphates also were not determined, though Denis has recently shown that in certain types of renal disease considerable accumulations of sulphate may occur in the blood. The importance of estimating as many inorganic constituents as possible in any sample of blood must be recognised, since, as will be seen later, variations in one body may be only capable of interpretation in the light of variations in another.

Methods Employed.

CO_2-combining power of plasma (bicarbonate), Van Slyke.

Phosphate content of plasma, Bell–Doisy.[1]—For this estimation the plasma was removed from the corpuscles within 30 minutes of withdrawal of the blood, minimal amounts of oxalate being used to prevent coagulation. It may be pointed out that the alkaline sulphite solution employed in the method should be prepared at frequent intervals, since otherwise the terminal reduction is unsatisfactory.

Chlorides of plasma, Donleavy–Van Slyke,[2] estimated in the same plasma as the bicarbonate.—The method is known to give somewhat high results, and the figures given, though comparable *inter se*, are not to be accepted as absolute values.

Calcium of serum, Kramer and Tisdall.[4]

Potassium of serum, Kramer and Tisdall.[4]—The serum for this determination was removed from the clot within two hours of withdrawal of the blood. Unless this precaution is observed high values are obtained, owing to escape of potassium from the corpuscles, which are exceedingly rich in this element. Serum left in contact with the clot for as short a time as five hours sometimes shows a definite increase in its potassium content, and in 24 hours the potassium content may double. In a few instances, in spite of the greatest care in adding the cobalti-nitrite reagent to the serum, a fine filmy precipitate, presumably protein, develops, and is detected during the final solution of the potassium cobalti-nitrite precipitate in N/50 permanganate. This precipitate is not due to any ageing of the reagent, but appears to be due to some peculiarity of the serum. Under these conditions the final readings are high, and the determinations were discarded.

Sodium, Kramer and Tisdall.[4]—All precipitates were dried to a constant weight at 110°. Though good results (within ± 5 per cent.) were obtained with simple solutions containing sodium, the results in serum were not entirely satisfactory. Considerable difficulty was at times experienced in drying the crucibles to a constant weight, especially when the same crucible had been used, as suggested by the authors of the method, for a series of determinations. The thick layer of precipitate under these conditions is very difficult to dry thoroughly. On the other hand, unless the filter is adequately clogged, low values are obtained. When any difficulty was found in obtaining a constant weight the results were not accepted.

Typical findings are given in the following tables. The sodium, potassium, calcium, and urea (when determined) are given in milligrammes per 100 c.cm., phosphates as mg. of phosphorus, and chlorides as mg. NaCl per 100 c.cm.; CO_2 as c.cm. per 100 c.cm. of plasma.

Normal Cases.

The findings in the normals (Table I.) call for no extensive comment. The figures obtained are in accordance with those of other workers. The chief points of interest are (1) the relative excess of basic over acid radicles, and (2) the large proportion of the total base which is in combination with hydrochloric acid. As regards the first of these, the excess of base is, presumably, to a very large extent in combination with the plasma proteins. Though the sulphuric and organic acids present were not determined, the amounts of such acids contained in plasma are known to be very small, and would account for a small part only of the excess of base present. Secondly, about two-thirds of the total basic radicles are in combination with a strong acid, hydrochloric, as chlorides, while less than a quarter is combined with carbonic acid as bicarbonate. Only a small part, therefore, of the total base present goes to form the so-called "alkaline reserve" of the plasma, though it must be recognised that part of the base combined with hydrochloric acid is, in whole blood, available for neutralisation of added acid; for, with an increase in the amount of acid radicles present in the plasma, a shift of HCl occurs from plasma to corpuscles, leaving base available for bicarbonate formation.

TABLE I.—*Normal Cases.*

No.	Serum.			Plasma.		
	Na.	K.	Ca.	Cl.	P.	CO_2.
1	332	19·3	9·9	645	2·9	67·5
2	331	20·6	9·9	624	2·9	63·3
3	371	20·2	10·0	630	3·3	61·4
4	343	23·7	9·7	620	3·1	68·0

Diabetic Cases.

The most striking feature of the analyses in the diabetic patients (Table II.) is the absence of any appreciable reduction in the total bases of the serum, even in cases in which a very marked ketosis was present, and in which the alkaline reserve of the plasma showed a definite fall. In Cases 3 and 8, for example, the sodium and other bases of the plasma are at a normal level, though the bicarbonate content is reduced to about two-thirds of the normal figure. Though the reduction of the alkaline reserve of the plasma (plasma bicarbonate) suggests the picture

of a general fall in the content of the plasma in basic radicles, such a depleted base content does not appear to be actually present. Similar findings are reported by Gamble, Ross and Tisdall[7] in a study of the acid-

TABLE II.—*Diabetic Cases.*

Date in 1923.	No.	Serum.			Plasma.			Remarks.
		Na.	K.	Ca.	Cl.	P.	CO_2.	
	1	346	21·4	10·3	640	3·1	59	No K.
	2	297	11·8	9·2	690	2·1	18	K. + + + coma.
10/9	3	342	20·8	8·9	617	2·2	43	K. + +
1/10	,,	335	20·6	9·7	607	3·5	59	On insulin. K. ±
	4	—	17·6	9·2	651	1·9	31	K. + +
	5	313	20·9	10·6	577	3·6	58	K. +
8/10	6	—	18·2	8·2	552	2·5	16	In coma. K. + + +
19/10	,,	—	17·5	8·5	552	3·0	59	On insulin. K. +
	7	326	20·0	9·4	596	2·9	60	K. ±
	8	343	23·6	10·2	619	3·4	42	K. + +

K = ketosis.

base metabolism during the ketosis produced by fasting, and of its effect upon the fixed bases of the blood. As is well known, large quantities of β-oxybutyric and di-acetic acid are formed in the body during a fast. Though a considerable fraction of the excess acid is excreted by the kidneys as free acid, and though a large proportion of the remainder leaves the body in combination with ammonia, a certain amount of fixed base is inevitably lost. In spite of this loss, the bases of the plasma were found to remain at an almost fixed level during the fast, though the plasma bicarbonate showed a definite reduction. Since there is no evidence of any increase in the inorganic acid radicles of the plasma to compensate for the diminution in HCO_3, the presumption is that the diminution of base normally bound as bicarbonate is compensated by an increase in base in combination with the ketone acids. Base which was previously present as bicarbonate is now circulating in combination with β-oxybutyric and di-acetic acids. The base content of the plasma tends to remain at a constant figure, though it is redistributed among the various acid radicles available, including the abnormal amounts of organic acids which are known to accumulate in the blood in these conditions. When we call to mind the manner in which other constituents of the blood tend to remain at a relatively constant figure under the varying environmental conditions to which the organism is exposed, this comparative fixity in the base composition of the plasma becomes less surprising. The loss of base in the urine is mainly met by drafts upon the tissues (Kingo Goto has, for instance, shown that, with long-continued experimental introduction of acids, the bones lose appreciable amounts of calcium carbonate); the bases of the plasma remain comparatively intact.

There are, in addition, indications of certain minor adjustments in the diabetic. (1) The inorganic phosphate content of the plasma shows, in some instances, a definite reduction. Such a reduction in the plasma phosphate might indeed be anticipated in diabetic acidosis; since the excretion of mono-basic phosphate by the kidney liberates base for combination with the excess of organic acids present, the phosphate of the blood being mainly present in the dibasic form. (2) The plasma chlorides tend apparently to lie at a lower level than in the normal; this diminution in the chlorides is presumably the result of a shift of HCl from plasma to corpuscles, basic radicles being liberated for combination with the excess of ketone acids.

The blood picture suggests, therefore, that in diabetic ketosis the base content of the plasma remains relatively constant. An extensive redistribution of base occurs, however, between the acid radicles; the bicarbonate of the plasma undergoes a great reduction, shared to a lesser extent by the phosphates and chlorides, the base thus liberated entering into combination with the excess of organic acids which are present in the circulation in this condition.

Advanced Nephritis.

Advanced nephritis of the azotæmic type is the disease par excellence in which marked alterations in the inorganic constituents of the blood occur. The primary factor underlying these changes is the inability of the kidney to excrete phosphoric acid with resulting accumulation of the acid radicle in the blood. In addition, it has recently been shown by Denis that very marked accumulations of sulphates in the blood may result from this type of renal defect. We have, therefore, in this disease, as in diabetes, a tendency to an excess of acid bodies in the organism, due, however, in nephritis, to failure to excrete a normal quantum of acids rather than to any excessive acid formation in the body.

The well-known alterations in the inorganic blood picture of the nephritic in the terminal stages of the disease are (1) a great increase in the phosphoric (and sulphuric) acid radicles, and (2) since acids circulating in the blood are of necessity neutralised, abstraction of base from the plasma bicarbonate for combination with the acid excess, the volatile carbonic acid resulting being excreted by the lungs. The phosphate accumulation and the resulting bicarbonate deficit are obvious in certain of the cases included in Table III. (2, 8, 9, 10). In addition, the

TABLE III.—*Nephritis.*

Date in 1923.	No.	Serum.			Plasma.				Remarks.
		Na.	K.	Ca.	Cl.	P.	CO_2.	Urea.	
	1	339	19·2	8·1	567	8·8	55	367	U.
	2	337	—	5·9	653	12·1	16	510	U. Died.
13/6	3	342	15·3	8·5	635	5·3	60	98	—
20/8	,,	341	15·6	8·9	514	6·7	85	120	—
17/9	,,	339	22·2	8·5	613	8·1	40	276	—
31/10	,,	—	19·9	9·1	618	6·8	48	154	—
	4	348	19·1	9·1	632	4·0	58	47	—
	5	346	22·2	8·2	620	4·9	60	75	—
	6	—	19·6	9·9	507	4·6	76	77	Int. obs.
	7	—	—	5·9	463	13·5	47	474	U. Died.
	8	—	23·8	7·9	620	8·1	33	261	—
	9	—	—	4·7	517	20·7	22	594	U. Died.
	10	318	32·8	—	568	9·4	41	309	U. Rec.

U = Uræmia. Int. obs. = Intestinal obstruction. Rec. = Recovered.

table shows the low calcium content of the serum which is peculiar to idiopathic tetany and nephritis, and which in the latter condition appears to be connected with the degree of phosphate accumulation (2, 7, 9).

The potassium content of the serum in these cases gives no support to the old theory that uræmia resulted from an intoxication with potassium salts. In one case only (10) is a definite increase in the serum potassium present. As has already been pointed out, errors may arise in the potassium estimation owing to the passage of potassium from the red cells to the serum. Though in this case, as in all others, the serum was removed from the clot within two hours of withdrawal of the blood, it is possible that under pathological conditions alterations in the permeability of the corpuscles may occur, and lead to a more rapid diffusion of potassium into the serum. In one case (3) the potassium content of the serum was on two occasions found to be at a low level.

The variations in the plasma bicarbonate are of considerable interest. Though the diminution in the bicarbonate of the plasma is reasonably ascribed to the accumulation of phosphoric acid in the blood, it has been pointed out by Denis and Minot[5] that the phosphate increase and the bicarbonate decrease are not in all cases proportional. This cannot, of course, be ascribed to any sparing of the base in combination with the bicarbonate, by accumulation of ammonia in the blood. All the available evidence is in favour of the view that no such excess of ammonia is to be found in the blood of nephritic patients, and since the main basic radicles apparently remain at a fairly constant figure, some form of redistribution of base must occur, in which acid radicles, other than the bicarbonate and phosphate, play a part. The redistribution actually found is well illustrated by Case 3.

In the second observation on this case (20/8/23) it will be noted that while the phosphate and the various basic radicles remain comparatively constant, the bicarbonate and chloride vary inversely. A rise in the bicarbonate content is accompanied by a fall in the chlorides. Though this might be interpreted as the result of a shift of HCl to the corpuscles, the explanation is probably more simple. The blood examined on 20/8/23 was withdrawn at the end of a period of continuous uræmic vomiting. It is already known that in the vomiting of intestinal obstruction an extreme fall in the chloride content of the blood occurs, and that at the same time the plasmic bicarbonate rises to a figure much above the upper limit of the normal. The mechanism of these changes is probably as follows. Large quantities of HCl are lost in the vomit; this HCl is derived in the process of gastric secretion from the NaCl of the plasma, the residual Na combining with carbonic acid in the blood to form bicarbonate. Under normal conditions, the excess bicarbonate thus formed passes into the intestines with the pancreatic and intestinal secretions, and combines with the gastric HCl to form NaCl, which can be re-absorbed. With vomiting the circle is broken and, while the chloride content of the blood falls, the bicarbonate rises. The condition is illustrated in Case 6, in which obstruction of the ileum was present. Here, early in the course of obstruction, the chloride is noticeably low and the bicarbonate somewhat above the normal level; the urea retention present in this patient is a constant feature of the severer types of obstruction, and is apparently the result of definite renal damage. In Case 3 vomiting ceased shortly after the second blood sample was examined, and at the time of the third observation (17/9/23) a more normal distribution of the acid radicles of the plasma was present. The bicarbonate was now reduced in proportion to the phosphate accumulation, and the plasma chlorides had returned to a normal level. The cessation of vomiting was accompanied by an extremely rapid gain in weight, which may have represented the restoration of the chloride and water content of the body to a normal figure, since the water content is largely determined by the amount of chlorides present in the organism.

Cases 7 and 9 are introduced as illustrations of the low plasma chloride that may be found in cases of nephritis in which excessive vomiting has occurred. In both the chlorides were determined by the more accurate method devised by Austin and Van Slyke.[6] Case 7 presents an interesting contrast to Case 2. In both patients approximately the same degree of phosphate retention was present. Case 2, in which practically no vomiting had occurred, shows extreme bicarbonate reduction with a slightly high plasma chloride, while in Case 7 the bicarbonate content is relatively little, the chloride greatly, reduced.

It would appear, then, that the vomiting of uræmia may be regarded as constituting a protective mechanism. By removal of HCl base is provided and the bicarbonate content is to some extent conserved in spite of phosphate retention. The vomiting is not the result of the reduction of the bicarbonate, since vomiting is by no means a marked feature of diabetic acidosis.

Eclampsia and Pre-Eclampsia.

The findings in the pre-eclamptic state and in eclampsia (Table IV.) are of little interest. Apart from the increased chloride content of the plasma and the slightly diminished plasma bicarbonate, the concentration of acid and basic radicles examined approximates closely to the normal. The high chloride content is presumably the consequence of the impaired chloride excretion which is known to occur in this disease. The reduction of the plasma bicarbonate is, with the exception of Case 5, hardly greater than that found in normal pregnancies. In Case 5, three severe fits had just occurred when the blood was withdrawn for analysis, and the patient eventually died as the result of a series of convulsions. A gross depletion of the alkaline reserve of the plasma was present, and was not apparently the result of a ketosis, since traces only of acetone and di-acetic acid were present in the urine. It is possible that the diminution in the plasma bicarbonate was the result of extreme muscular exertion incident to the convulsions.

TABLE IV.—*Eclampsia and Pre-eclampsia.*

No.	Serum.			Plasma.			—
	Na.	K.	Ca.	Cl.	P.	CO_2	
1	340	20·4	8·7	660	2·9	49	—
2	354	22·0	9·5	660	3·6	51	Pre-eclamptic.
3	337	18·5	9·7	643	2·7	52	,,
4	314	20·9	9·9	645	3·0	49	,,
5	291	23·8	9·3	662	4·9	28	Immediately after 3 fits.
6	327	21·6	9·0	607	4·3	46	48 hours after 3 fits.

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SOME OBSERVATIONS ON THE SCHICK TEST.

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DURING the last 18 months we have been able to subject to the Schick test a large number of the patients admitted to the Edinburgh City Hospital, all the nurses, and most of the students attending the clinics. Our results, therefore, give some indication of the susceptibility to diphtheria of different groups of individuals, normal or suffering from one or other of the infectious diseases, and drawn from different classes of the population. It is to be regretted that the numbers of measles and whooping-cough patients are so small, but very few who were admitted escaped the test. The great majority of our scarlet fever patients were also tested. As regards the other infectious diseases only a few tests were made, the time at our disposal being limited.

Technique.—The toxin used was prepared by Dr. R. A. O'Brien and supplied from the laboratories of Messrs. Burroughs and Wellcome. The dose given was in all cases 1/50 of the minimum lethal dose for the guinea-pig, injected in 0·2 c.cm. of normal saline. This toxin gave very consistent results.

Reaction.—It seems unnecessary to describe the reaction. Those not familiar with it will find full descriptions in the papers of H. Mason Leete,[1] A. T. Glenny, K. Allen, and R. A. O'Brien,[2] and Gladys Ward.[3] Every test was controlled, the left arm being used for the injection of active toxin and the right for the inactivated toxin of the control. We worked together, one being responsible for the test and one for the control, a precaution which avoids the not unlikely errors of giving the injection into the wrong arm or of confusing the bottles containing the dilutions. As, with the exception of the student group, all our patients were in the same institution, we were able to watch the reactions closely, and every arm was examined on each of the first three days after injection and again on the tenth day. This we found very helpful in the study of pseudo- and combined reactions. The notes made on each examination have also been of use in determining the most suitable day for deciding whether a test is positive or negative, if, as must often be the case, only one examination can be arranged for.

It may be well to emphasise the fact that the test causes no discomfort to the patient, nor did one of

the 4352 injections (tests and controls) raise any suggestion of septic inflammation. A few of the more intense reactions, certainly less than half-a-dozen, showed slight vesiculation. The only precautions taken were the scrubbing of the arms with ether at the site of injection and the dipping of the needles in alcohol between each test.

TABLE I.—*Total Cases (September, 1922, to February, 1924).*

Age-period in years.	Total.	Negative.	Positive.	Per cent. positive.
0–½	13	11	2	15·3
½–1	40	10	30	75·0
1–2	105	20	85	80·9
2–3	141	24	117	82·9
3–4	172	48	124	72·0
4–5	124	38	86	69·3
5–10	539	224	315	58·4
10–15	250	120	130	52·0
15–20	209	97	112	53·5
20–30	477	194	283	59·3
30–40	76	39	37	48·6
40–50	18	10	8	44·4
50–	12	9	3	25·0
Totals ..	2176	844	1332	61·2

This table includes all individuals tested, patients suffering from scarlet fever, measles, whooping-cough, surgical tuberculosis, erysipelas, chicken-pox, puerperal fever, meningitis, &c.; all the hospital nurses, maids of the domestic staff, students, resident medical officers, and children of the staff.

Table I. gives the results of all the 2176 tests made, and gives some indication how susceptibility varies with age. It is generally held that immunity is gradually acquired by exposure to small and repeated doses of the diphtheria virus, doses which are insufficient to produce the actual disease. For the first few months of life the infant is protected by natural antitoxin transmitted from the mother, but this immunity, well demonstrated by our figures, is seen to decline rapidly, and between the ages of 1 and 3 years susceptibility is at its highest. After the third year immunity gradually increases, and this improvement is maintained in our cases up to the fifteenth year. If we had to deal with the city population alone the decline would doubtless continue, but the next age-period includes an increasing number of persons from the country, children for instance sent in to boarding schools, domestic servants, and after the age of 18 years a solid block of our own nurses, many of whom are brought up in country districts where presumably the chances of exposure to subinfecting doses of diphtheritic infection are much less than in town. It is the nurses also, now supplemented by a large group of students, who help to account for the singularly high susceptibility-rate between the ages of 20 and 25. Thereafter, though the numbers are too small to be taken seriously, the natural decline reasserts itself.

Table II. shows the susceptibility-rates of our scarlet fever, measles, and whooping-cough patients, and interesting differences between the diseases may be observed. It will be noted that the total percentage of positive tests in scarlet fever is distinctly high. The figure, 62·1 per cent., is not very different from figures found in the same wards in 1920 and 1921 by Leete [1] and Ward,[2] 57·2 and 56·0 respectively. It is considerably higher, however, than the 45 per cent., reported by A. Zingher,[4] of 1200 scarlet fever patients in New York, or the 47·4 per cent. of T. E. Dickinson's [5] Manchester cases. Yet Zingher considers that his figure is a high one when compared with that of the normal children whom he has tested, and points out that it agrees with the undoubted clinical fact that scarlet fever patients are unduly susceptible to diphtheria. This susceptibility, he explains, may be due to the destruction of the natural antitoxin during an attack of scarlet fever. Poliomyelitis is said to have a similar effect. It will be seen in our table, however, that at the most susceptible age-periods, from six months to three years, measles gives an even higher positive rate than does scarlet fever.

So far as our own cases are concerned, we are inclined to explain the high susceptibility noticed in scarlet fever by the character of the population dealt with. Our scarlet fever patients are a fair sample of the whole population of Edinburgh, as it has been the custom to isolate at least 95 per cent. of all the cases in the city. On the other hand, only a small minority of the measles and whooping-cough cases are sent into hospital, and these usually come from the poorest homes in the city. The whooping-cough children, in particular, may be said to represent the slum population. Zingher [6] has shown that the children in the poorer class schools in New York have a much lower susceptibility-rate than those from the schools in better districts. As a result of overcrowding and bad hygiene at home the class from which our whooping-cough patients come begins very early to suffer exposure to diphtheria and, as a result, acquires immunity very rapidly. Our measles patients, though mainly of a very poor class, are a little more mixed, and obtain immunity somewhat more slowly, though much more rapidly than does the scarlet fever group, as will be seen by a study of the percentage of positive tests at each age-period.

TABLE II.—*Percentage of Positive Tests in Scarlet Fever, Measles, and Whooping-cough.*

Age-period in years.	Scarlet fever.		Measles.		Whooping-cough.	
	No. tested.	Per cent. positive.	No. tested.	Per cent. positive.	No. tested.	Per cent. positive.
0–½	3	33·3	3	33·3	4	0
½–1	9	77·7	16	83·7	14	64·2
1–2	31	80·6	40	90·0	32	68·7
2–3	78	82·2	26	92·3	32	78·1
3–4	113	77·8	30	70·0	24	45·8
4–5	91	76·9	14	64·2	9	33·3
5–10	471	61·3	27	44·0	19	26·3
10–15	235	53·1	0	—	0	—
15–20	69	42·0	1	0	0	—
20–30	57	47·7	7	71·4	0	—
30–40	29	51·7	0	—	0	—
40–50	12	41·6	0	—	0	—
Totals ...	1198	62·1	164	73·7	134	55·9

TABLE III.—*Percentage of Positive Tests in Students, Nurses, and Hospital Ward and Laundry Maids.*

Age-period in years.	Students.		Nurses.		Maids.	
	No. tested.	Per cent. positive.	No. tested.	Per cent. positive.	No. tested.	Per cent. positive.
15–20	0	—	91	70·3	28	42·8
20–30	268	63·0	97	62·8	22	31·8
30–40	22	45·4	6	33·3	5	39·9
40–50	3	66·6	0	—	0	—
Over 50	0	—	2	50·0	0	—
Totals..	293	61·7	196	64·7	55	38·1

Students, Nurses, and Staff.—Table III. gives our results for three groups of adults, nurses, students, and hospital domestic staff respectively. The close correspondence of the figures relating to the nurses and students in the same age-period, from 20 to 30 years, is very interesting. All, no doubt, have been brought up in reasonably good hygienic surroundings and many are from country districts. The susceptibility-rate at this age seems unduly high, 63 per cent., but it accords with that of 65 per cent. found by O'Brien [7] and his fellow-workers in a group of 160 medical students. The much lower rate shown by the hospital maids seems to imply that social conditions have more influence than age in determining the development of immunity. A considerable proportion of our domestic staff comes from mining villages in the vicinity of Edinburgh.

Surgical Tuberculosis.—We took the opportunity of testing 59 patients suffering from this condition and found that, although no fewer than 42 were under 15 years of age, the susceptibility-rate was as low as 37·2 per cent. This group included children of all classes, though no doubt the majority were

from poor homes. Ward [3] found that the percentage susceptibility was considerably higher in acute than in chronic diseases, and these figures, though too few to be of real value, appear to support her contention.

The gradual increase in the percentage of pseudo-reactions as age advances is well shown in Table IV. It would appear to justify two deductions. In the first place, the number of pseudo-reactions in children of under 5 years of age is so very small that it would appear quite unnecessary in their case to trouble

TABLE IV.—*Pseudo-Reactions: 2176 Tests.*

Age-period in years.	Per cent. of pseudo-reactions.	Per cent. of pos. Schicks.	Age-period in years.	Per cent. of pseudo-reactions.	Per cent. of pos. Schicks.
0–5	0·86	74·6	30–40	32·8	48·6
5–10	3·1	58·4	40–50	38·8	44·4
10–15	7·6	52·0	50–	41·6	25·0
15–20	26·7	53·5			
20–30	31·4	59·3	Totals..	13·0	61·2

with a control test. This test, indeed, might well be omitted also in the succeeding five years of life, the risk of error being still very slight, and the worst that could happen being the unnecessary immunisation of three children in every hundred. The second deduction is that, with so little susceptibility to bacterial protein at these ages, troublesome reactions to the immunising injections are most unlikely to occur. That in fact they do not occur in young children is the experience of all who have had much to do with immunisation work. We were, therefore, able to advise the Edinburgh public health authorities that they could safely lessen the amount of work by dispensing with control tests, and that it was extremely unlikely that they would be troubled with severe reactions. In the schools which they have since protected they have found this to be the case. It is satisfactory to know that those who require immunisation most—i.e., the children—are so little upset in the process. As regards adults, unless, as is the case with nurses, their duties bring them into contact with diphtheria, there is not so much to be gained by inoculation and, if they present pseudo-reactions, it is a question whether immunisation is worth while, as it is in this class of persons that troublesome reactions are most likely to occur.

As all our cases were controlled there was no difficulty in recognising pseudo-reactions. The real trouble, however, was, if a pseudo-reaction was present, to determine whether the Schick test was positive or not. To make certain an opinion cannot be given for ten days, and in some of our cases it was necessary to wait even longer before coming to a final decision. Where a combined reaction is present it leaves much more definite pigmentation and desquamation than is to be seen on the control arm, and the diagnosis depends on the contrast between the reactions on the two arms at about the tenth day. We found in our nurses and students that combined reactions were by no means uncommon, and we have been able to satisfy ourselves that, after immunisation, this "positive and pseudo" reaction disappears, the next Schick test resulting in absolutely identical appearances on both arms and being classified as "negative and pseudo." We are therefore compelled to disagree with Dr. O'Brien's suggestion that cases presenting a pseudo-reaction are immune and therefore do not require toxin-antitoxin injections. As was to be expected, pseudo-reactions were much more common in persons already sensitised to bacterial protein. Of 170 individuals who gave a definite history of having been treated at some previous date with horse serum, either antidiphtheritic or antitetanic, 67, or 39·4 per cent., were pseudo-reactors as against only 13 per cent. of all persons tested.

The Test in Acute Diphtheria.

As a matter of interest we tested 55 diphtheria patients on admission and obtained a definite positive result in 54 of them. All tested had definite clinical and bacteriological diphtheria, and it was naturally expected that all would be positive. It is interesting to note that the subsequent course of the one negative case led to a suspicion that an error in diagnosis may have been made, and that in reality the case was one of septic infection occurring in a carrier.

The Test in Relation to Previous Attacks of Diphtheria.—Of 157 patients who gave a history of having suffered previously from diphtheria, 46·4 per cent. had positive reactions and were regarded as being susceptible to the disease.

Effect on Test of Recent Treatment with Antitoxin.

In the course of our work we subjected to the test 37 individuals who for various reasons had received prophylactic injections of antitoxin within three weeks prior to the test. These patients naturally are not included in our tables. All were negative except one who gave a definite positive reaction 12 days after a 500-unit dose. Clinically, our hospital records do not show an instance of any patient so protected developing diphtheria in less than 22 days after such a dose, though we understand laboratory work goes to show all antitoxin may have disappeared from the blood in 12 days. For all practical purposes we think a prophylactic injection may be trusted to give protection for three weeks.

Incidence of Diphtheria in Positive and Negative Cases.

During the time we have been engaged in this work 13 individuals, who had been tested, contracted diphtheria, some in hospital and some at a later date. Of these, 11 had given a definite positive reaction. In the two others the reaction had been noted as negative, but in one of them it was found that the test had been made within a fortnight of an antitoxin injection and was therefore of no significance. The remaining patient, one of our own nurses, had originally given a positive test, had then been immunised, and some months later re-tested. On this occasion a slight reaction was noted on both arms at 24 hours and nothing convincing thereafter. She was classed as negative and later took diphtheria. It is, of course, possible there may have been a very slight positive combined reaction, but it seems reasonable to regard this case as one in which the test definitely failed.

Delayed Reactions.

The possibility of delayed reactions is of some importance, especially if only one reading of the test can be arranged and if that reading is made too early. The suggestion has been made that 95 per cent. of readings made at 24 hours are proved to be accurate. We consider this percentage, as judged by our own experience, far too high. We have often had to wait 48 hours for any real indication of the ultimate result. In feeble and badly nourished children, in particular, the reaction appears to come up slowly. It will be sufficient to give the figures relating to the whooping-cough patients. Of the 75 cases ultimately classed "positive," only 17 showed anything on the arm at 24 hours, by 48 hours 37 had become positive, by 72 hours 62, the remaining 13 reactions appearing in most cases at 96 hours, but in one or two even later. It may be admitted that this group consisted of very young and feeble children, many of whom were suffering from broncho-pneumonia. The figures, however, show that definite conclusions cannot be drawn even from 72-hour readings.

Anomalous Reactions.

With one particular batch of inactivated toxin we obtained the somewhat disconcerting result of a reaction on the control arm only. We were able to satisfy ourselves that this anomaly was not due to any mistake in the inoculations or to using the wrong bottle for the test. In all 13 reactions occurred on the control arm alone and in 18 more the control arm showed a much more marked reaction than the others. Béguet and Parrot [8] have described similar reactions which they term "paradoxal." In 100 children they

observed 21 such results, chiefly in children of over 10 years of age. They conclude that the heating of bacterial proteins causes a definite increase of their toxicity for certain subjects. This hardly explains the rarity of this curious reaction or the fact that, in our experience, it was only observed in one group of individuals who had been tested with the same batch of inactivated toxin. In any case, a phenomenon which has so seldom been reported may be regarded as of little consequence.

Conclusions.

From the study of our results we have come to the conclusion that the Schick test might be omitted so far as children of under school age are concerned. Such a high proportion of these give positive reactions that it would be reasonable to proceed with immunisation at once. In older children, up to the age of 10 years, it seems unnecessary to make use of the control test. It is highly desirable to simplify the procedure in every way so that as few injections as possible have to be made. If it is possible to arrange for two readings of the reaction these are best made on the fourth and tenth days. If one reading only is practicable the eighth day appears suitable, and the first immunising dose can be given at the same visit.

We have not in this paper touched the question of immunisation which is, of course, the logical sequence of the Schick test. The immunisation, however, of all the hospital nurses, who proved Schick "positive," has been carried out by one of us and the results so far have been promising. We require more time for the study of the after-history of the protected persons, but it is hoped that a preliminary note on the effect of the toxin-antitoxin inoculations will soon be ready for publication.

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TREATMENT OF SYMPTOMS IN INOPERABLE CANCER WITH LIQUOR POTASSÆ.

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HOUSE SURGEON, YORK DISPENSARY.

I SHOULD like to bring to the notice of my colleagues some cases of inoperable malignant disease which I have been treating for some months with liquor potassæ.

CASE 1.—Mrs. B., aged 40, has had a history of gastric disturbance over a period of 12 years. Four years ago she noticed a "lump" in her left side below the rib margin. This gradually enlarged and she began to have attacks of pain and vomiting, which became more severe until December, 1922, when she was sent into hospital for operation. After admission she had a severe hæmatemesis. At operation an inoperable cancer of the pylorus was found, and a gastro-enterostomy was performed as the pyloric opening was almost closed. She was discharged in February, 1923. During the year the symptoms continued, and the pain was so severe as to interfere with sleep. There was increasing weakness and cachexia. On Sept. 10th, 1923, I found the patient in great distress, crying out with pain and with almost continual vomiting. She was very emaciated and her complexion was greyish-yellow. The abdomen was rigid, and there was a hard, irregular mass about 2½ inches in diameter in the left hypochondrium. Above and median to the mass some small separate nodules were palpable. There was marked tenderness and dullness in the epigastrium, and also over the mass. I gave morphine four-hourly for three days without much relief. On the third day I found her delirious with pain and exhaustion, and prescribed the following: ℞ Liq. potassæ, ℥xv.; pot. nit., gr. x.; aq. menth. pip., ad ℥ss.; ℥ss., t.i.d., ex aq. a.c. The result of the first dose was dramatic. The patient slept many hours without waking, and next day the pain was very much relieved and there was no vomiting.

I have continued with this treatment for the past four months with the following results. The pain has gradually lessened in severity and frequency, until now it is negligible. There has been no vomiting whatever since Sept. 13th. The small nodules disappeared within a fortnight, and the large mass is now reduced in size by more than half. In the morning, when the stomach is empty, it is not palpable at all. The patient's general condition has steadily improved. She has gained in weight week by week. Her complexion has become normal. She is able to walk three miles without any discomfort. Her appetite is good, and she can eat almost any food without pain. After the first month I increased the dose of liq. potassæ to ℥xx. and later to ℥xxv. On Dec. 10th I reduced the dose to ℥xv. For the past few weeks the gain in weight has been maintained with administration of the medicine every alternate week only. The patient assures me that any pain she has had since September has been due entirely to flatulence.

CASE 2.—Mrs. C., aged 36, had a radical operation for cancer of the breast in January, 1923. When I saw her on Nov. 20th she complained of "rheumatism" in the back, in the interscapular region, and in the shoulders and right arm. She also complained of a lump in her neck. On examination I found a hard, immovable mass in the lower part of the posterior triangle of the neck. The upper border extended about 1½ inches above the clavicle, and the lower border could not be palpated beneath the clavicle. Immediately above the mass were some hard nodules—defined and movable. The right shoulder was raised and the head held slightly towards that side. She looked ill, and her complexion was very sallow.

She was treated with potassium by mouth for one month, and during that time her general condition improved enormously. Her appetite improved at once, she grew much stronger, was able to get about out of doors, and her skin lost its sallow tinge. In three weeks the movable glands had disappeared, but I found it very difficult to determine whether the mass extending beneath the clavicle had reduced in size. The pain was not much relieved.

CASE 3.—Mrs. W., aged 69, had a history of pain and vomiting after meals, and also of frequent acute attacks of pain and vomiting without relation to food for some years. In the summer of 1921 operation was advised, but she refused to go to hospital. When I saw the patient on Nov. 29th, 1923, she was exceedingly emaciated and of a deep yellow colour. She was too weak to raise herself in bed, did not recognise the members of her family, and was alternately comatose and delirious. Her pulse was weak and irregular. There was a subnormal temperature, vomiting was frequent and severe—"coffee-ground." She had not slept for five days and nights. On examination the emaciation was extreme. The abdomen looked "lumpy," and the skin over it wrinkled and deeply pigmented. On palpation there was marked resistance and tenderness in the epigastrium, and an irregular, hard, nodular thickening over the abdomen. There was no free fluid. There was no mass palpable in the left hypochondrium, but extensive dullness on percussion. Liquor potassæ was given, and after the first dose the patient slept 14 hours, and awoke without pain or sickness and mentally clear. During the next three days she had two attacks of vomiting, but they were not so severe, and after six doses they ceased altogether. Her pulse grew stronger daily, and she had very little pain. At the end of a fortnight she was able to sit up in bed unsupported, was hungry, and having good nights. A month later the epigastric tenderness had disappeared. There had been no vomiting whatever. The complexion was almost clear, and the skin of the face less wrinkled. On Dec. 28th following she had an acute attack of pain and some vomiting, which was quickly relieved with morphine.

Although none of these cases is cured, they have all shown such remarkable improvement under the administration of potassium in this form that I think further investigation and wider application of the treatment than my own work permits is merited. The results generally, and the almost startling relief after the first dose of liquor potassæ, have led me to consider whether there may not be some specific effect of potassium upon cancer growths. It has been shown that "the potassium content of the red corpuscles of cancerous patients is approximately double that of healthy persons," and "chemical analysis of 300 tumours showed preponderance of potash salts and nucleo-protein content, associated with high virulence and rapid development."

The question arises whether potassium be a natural agent used by the body to control the perverted metabolism of tumour cells.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

A MEETING of this section was held on May 23rd, Dr. MAJOR GREENWOOD being in the chair.

A resolution was carried expressing the profound grief of the section occasioned by the death of Dr. Richard J. Reece, their President, and their deep sympathy with Dr. Reece's family and colleagues. On the recommendation of the Council of the section it was resolved to hold the ordinary meetings of the section in the session 1924–25 at 5.30 P.M. on the fourth Thursdays of the month.

The Elucidation of Cancer.

Dr. LOUIS W. SAMBON read a paper on this subject. He gave an account, illustrated by numerous lantern slides of classical sculptures, of the knowledge possessed by the ancient civilised races of malignant disease, and then indicated the analogies between cancer and certain diseases, such as elephantiasis, of parasitic origin. He described the field investigations he had recently carried out in parts of the province of Romagna (corresponding roughly with the eastern part of the departments of Emilia and Tuscany, in the neighbourhood of Forli and Fiesole) which led him to conclude that cancer was a parasitic disease, possibly caused by a nematode of which the cockroach was an intermediate host or carrier. Dr. Sambon dwelt on the importance of Fibiger's researches on the gastric carcinoma of rats caused by eating infected cockroaches, and entered a strong plea for the extension of field investigations such as that he had just completed. In his opinion, it was by such field work rather than by the comparison of statistics that the ætiology of cancer would be elucidated.

The CHAIRMAN said that the very remarkable differences in rate of mortality from certain forms of cancer which distinguished England and Wales, Italy and Holland, were at present the object of an international inquiry, and the national representatives would certainly take note of Dr. Sambon's results.

Dr. R. DUDFIELD said that Dr. Sambon had given reasons for a reconsideration of the question of "Cancer Houses," and he (Dr. Dudfield) intended to pay special attention to this point.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this Association was held at the Elizabeth Garrett Anderson Hospital on May 13th, Miss M. CHADBURN presiding.

Bacteriophage.

Dr. E. LEPPER read a paper on Bacteriophage, with lantern illustrations. She showed cultures demonstrating the chief characteristics of a bacteriophage—namely, (1) inhibition of bacteriological growth, (2) lysis of bacilli, (3) filtrability, (4) resistance to heat, (5) reproduction when incubated with a sensitive, growing organism, (6) the production of bacteriological variation. The bacteriophage used in her experiments was isolated from the urine of a woman suffering with bilateral pyelitis due to *B. coli*. It is lytic for the organisms grown from the urine of the same patient, and from some other strains of *B. coli* as well. She showed lantern slides illustrating the marked immediate effect of a strong bacteriophage on a sensitive culture. She found that a dilution of 1 in 100 bacteriophage reduced the number of colon bacilli present in an emulsion from 2500 per drop to 10 per drop in 15 minutes; a dilution of 1 in 10 of the same bacteriophage took 1·5 minutes to produce the same result. She suggested that such a bacteriophage might be introduced into the pelvis of the kidney in cases of *B. coli* pyelitis when the causative organism was sensitive to its action.

Dr. IRIS FOX read a paper on the

Use of Vaccines and Sera.

She discussed the attitude to this subject of the medical profession, noting the acknowledged value of prophylactic vaccination in certain specific infections, and its apparent failure in certain other specific diseases, and concluded that the possibility of adequate protection against non-specific invasions was, on the whole, considered unproven. There was greater general confidence in the prophylactic rather than the therapeutic use of vaccines. Passive immunisation with specific serum was accepted as the unique curative or prophylactic measure in diphtheria or tetanus. Miss Fox expressed her own belief in the future of artificial immunisation. We had here a powerful—perhaps the most powerful—weapon against disease, but had not yet the knowledge to use it properly. For example, there was the widest variation in the doses given and the reactions arrived at. In the case of prophylactic inoculation against the enteric fevers the large initial dose was given of 500 million *Bacillus typhosus*, with 250 million each of *B. paratyphosus* A and B. An example of much higher initial dosage was the method of inoculation against pneumonia used in South Africa by Spencer Lister, who gave a first injection containing 6000 million each of four different pneumococcal strains. Every kind of vaccine had been, and still was being, given on a large dose system in which a slight or moderate constitutional reaction was desired, and, on the other hand, in comparatively minute doses, aiming at immunisation without the production of any general disturbance. There was, she thought, an increasing tendency to use small doses in treatment. There was just as much difference of opinion concerning the interval between injections and the importance of the negative phase. It was difficult to determine the relative value of different techniques in our ignorance of the immunising processes of the body. Laboratory attempts at exact measurement of immunity production had unfortunately been of no more help than had vague clinical impressions as to the value of this or that proceeding. Protection against, or cure of, disease in the animal body was not always proportionately indicated by a high serum content of demonstrable antibodies, such as agglutinins. It seemed likely that specific antibody content was not the only factor in immunity, and much work, and probably considerable alterations in our conception, was needed before specific therapy could be properly controlled. Miss Fox proceeded to discuss the question of specific and non-specific therapy and the collection of material for bacteriological diagnosis. She dealt briefly with active immunisation against diphtheria, which had passed the experimental stage and was being practised with great success in America; also with the typing of pneumococci and with the beneficial results, in the Rockefeller series of cases, of the specific antiserum in Type 1 cases. She referred to the work of Miss Mary Cowan on the rough and smooth varieties of the hæmolytic streptococcus and to the possible clinical application of this work.

Dr. MARY COWAN said that from a single strain she had been able to isolate a rough and a smooth type of hæmolytic streptococcus, of which the smooth was virulent and the rough was not. She tried to immunise mice and rabbits, and in mice was able to give immunity by a serum produced from the rough to those infected with the smooth variety. In rabbits this was only possible in a very small percentage. When using a smooth strain alone she had 66 per cent. of successes. The serum of protected rabbits gave great variation in agglutinin content; some animals which had agglutinisation of a very low titre lived, and others with a high titre died. No relation was found between agglutinins and useful antibodies.

EDINBURGH OBSTETRICAL SOCIETY.

A MEETING of this Society was held on May 14th, Prof. B. P. WATSON, the President, being in the chair.

Pelvimetry.

Dr. S. J. CAMERON and Dr. J. HEWITT (Glasgow) communicated a note on pelvimetry. Dr. Hewitt, who read the paper, pointed out the fallacies attending the performance of the bimanual examination as described and illustrated in the text-books. He considered the Munro Kerr manœuvre, in which the fingers of one hand, in a position of semi-supination, were introduced into the vagina, while those of the other attempted forcibly to depress the head into the brim—a physical impossibility. In cases of small pelvis associated with a pendulous abdomen, one hand alone could not press the head down, and, further, the thumb was not in the right position to estimate the degree of overlap at the pelvic brim. Ballantyne, in 1921, had recommended the help of an assistant in the performance of the bimanual examination in these circumstances. They therefore recommended that the fingers should be passed into the vagina with the hand and forearm in the position of full supination. The tips of the examining fingers then came into contact with the fœtal head, and not the lateral side of the fingers as in the illustrations in the text-books. If the head was now pressed down into the pelvis by an assistant the sensitive finger-tips were able to estimate the degree of descent, and after this had been done it was possible for the free and unrestricted hand to estimate the degree of overlap at the brim.—The PRESIDENT expressed complete agreement with the authors of the paper.

Dr. HAIG FERGUSON said that the fingers in the vagina also helped to indicate that the head was descending in the proper axis.

Dr. WILLIAM FORDYCE emphasised the importance of flexion and head moulding when attempts were made to estimate the relative proportion between the fœtal head and the pelvic brim.

Dr. FRASER LEE and Dr. R. W. JOHNSTONE also took part in the discussion.

Dr. CAMERON communicated a record of

One Hundred Successive and Successful Cases of Cæsarean Section.

He briefly described the technique which experience had led him to employ in the performance of this operation. Having seen cases return to hospital with large ventral hernia in which approach to the abdomen had been obtained by means of a mid-line incision, he had now abandoned this in favour of the approach through the rectus, with most satisfactory results. He preferred catgut to silk in the closure of the uterine wound on account of the fact that silk was not absorbed; it gave rise to adhesions and he had seen a sinus, through which menstruation took place, due to the presence of unabsorbed silk in the uterine wall. It was well known that pathogenic organisms might lurk in the skin, however thoroughly it had been prepared before operation, and for this reason he set aside the knife with which the primary incision was made and covered the skin edges with gauze. He believed in leaving adhesions alone and often used the transverse fundal incision. 1 c.cm. of pituitrin was injected directly into the body of the uterus. After losing a number of cases from causes attributable to the anæsthetic, chloroform was now used as a routine. Cases complicated by bronchitis, catarrh, or emphysema stood the administration of ether badly, and chloroform in careful hands had given better results. Should signs of chest trouble be present these patients were placed in a steam tent immediately after operation, and the benefit they obtained from this line of treatment was often remarkable. All cases after operation were placed in the Fowler position.

Dr. HAIG FERGUSON, Dr. FORDYCE, and Dr. JAMES YOUNG took part in the discussion.—Dr. CAMREON, in reply to questions, pointed out that by a successful Cæsarean section he meant one which was successful from the maternal point of view. Fœtal deaths occurred now and then, as in general obstetrics. In his later cases he had perhaps been more careful in the selection of his patients.

Dr. E. FARQUHAR MURRAY (Newcastle-on-Tyne) read a paper on

Cæsarean Section.

His observations were based on an operative experience of over 100 cases, with special reference to clinical and pathological findings in cases of obstructive labour and describing a new operative technique in infected cases. This paper recorded an experience of 116 sections, the majority of which were performed to anticipate or relieve obstructed labour due to pelvic contraction, the others for less common indications. The operation, which takes from 12 to 20 minutes, was briefly described. The gaping mouths of sinuses seen while incising the uterus had suggested to the author that a safer method of approach must be adopted in septic or suspect cases. The placenta was found posterior or anterior in proportion of 4 to 3, but in cases where section had previously been performed the proportion was 3 to 1, suggesting that the residual scar-tissue contributed to this result. Rupture of an old scar was a negligible risk. It happened in one case on whom four previous sections had been performed. The complete ovum was found in the abdominal cavity, and the uterus, firmly contracted, was re-sutured, the mother making a good recovery. The previous obstetric histories of patients with contracted pelves were often instructive. One 7-para reported that her four children delivered alive with forceps died between 6 and 12 weeks from fits. Primiparæ having no antecedent obstetric history were entirely dependent for their safety on a prematernity examination. Contraction of the pelvic outlet he had found to be less common, but more treacherous than at the brim. Discussing the operative findings, Dr. Murray pointed out how Bandl's ring frequently corresponded with the position of the child's neck. The lower uterine segment was thin in cases of over-distension—sometimes no thicker than wet blotting-paper—and in two cases blood was extravasated under the peritoneal coat, indicating that it was on the point of rupture. The damage from trauma, to which the lower uterine segment, cervix, and vagina were subjected, and which results in obstructive labour from natural forces, was not sufficiently recognised. Referring to the placenta and membranes, it was noticeable that in a case obviously infected at a late stage the chorion appeared yellow and pultaceous in the lower areas and could not be stripped off, suggesting that infection was tracking up in this layer outside the amnion. The liquor in such a case was, as a rule, scanty and contained meconium; in a number of cases it was definitely offensive. Many hours in labour, much interference, or the presence of Bandl's ring he looked upon as strong presumptive evidence of infection. A discharge developing during labour, after rupture of the membranes, was almost certain proof. Offensive liquor found on opening the uterine cavity, or a culture obtained from liquor per abdomen, was proof positive. Dr. Murray described his operative technique in infected cases in detail. His practice has been to have the patient placed in the lithotomy position and the vagina then douched out with eusol. The uterus is eventrated and held well forwards, and after being packed round with swabs, the edges of the abdominal incision are clipped together over the swabs. Towels are wrapped round the uterus outside the abdomen and are further protected by a layer of rubber sheeting. The fundus is incised transversely and the child extracted. An assistant holds the anterior and posterior walls apart, and thus prevents separation of the placenta until the muscular funnel lined by the placenta and membranes has been well douched out with eusol, the fluid escaping readily at the vagina. The placenta and membranes are then pressed down into the vagina with swab pressure, and extracted from below. The cavity is flushed again

with eusol and the uterus and abdomen closed. The peritoneal cavity is well protected, and the uterine incision avoids the very vascular placental site, which is protected from infection until the membranes have been well flushed. Extraction of the placenta from below prevents the more highly infected membranes in the lower pole from being dragged over the placental site and wound edges. This is only possible if the os is half or more dilated. This technique has been adopted in five cases, but in one the placenta had to be extracted through the abdominal incision owing to insufficient dilatation of the os. One very late case died. All the cases were believed to be infected, although proved by cultures in two only, both of whom survived. Four live children resulted, the fifth being dead at the time of operation. Dr. Murray then proceeded to describe his results of Cæsarean section for various conditions such as placenta prævia, occipito-posterior cases, and tumours complicating delivery. The question of accessibility and vascularity would decide whether to attempt the removal of fibroids at the time of section or to postpone till involution was complete. In infected cases the latter course was certainly the wiser one to adopt.

Prof. WATSON said that he was much impressed by the details he had heard from Dr. Murray of his technique in septic cases, and wished to congratulate him on the way in which he had tackled this difficult problem.

Dr. JOHNSTONE said that he would be anxious to use Dr. Murray's methods when next he had the opportunity.

Dr. FORDYCE was interested particularly in the removal of the placenta and membranes from below, and questioned the efficacy of the intra-uterine douche. In one case quoted by Dr. Murray at the post-mortem examination organisms had been found in the uterine musculature and here douching would have been ineffective.

Dr. YOUNG, Dr. FERGUSON, and Dr. HUGH S. DAVIDSON also spoke.

Exhibition of Specimens.

Dr. W. T. THEODORE HAULTAIN showed an unusual broad ligament cyst with a twisted pedicle. A specimen of a double uterus, which had given rise to dysmenorrhœa, was demonstrated by Dr. MURRAY.—Dr. CAMERON showed two cases of chorion epithelioma, one showing scattered areas of growth in the uterine wall and in the other the tumour was found in the cervix, the symptoms and signs being suggestive of a rapidly advancing cervical carcinoma.—Dr. FERGUSON showed two specimens of ovarian cyst with twisted pedicle and hæmatosalpinx.—Miss G. HERZFELD showed a large mass of fibroids which filled more than half the abdomen. The upper pole of the tumour was hidden behind the left costal margin and the difficulties encountered at operation were briefly described. She showed also a photograph of a minute adenomyoma of the uterine wall. In the course of an operation a puckering and roughening of a small area of peritoneum on the posterior surface of the uterus was noted, and on removing a portion and subjecting it to microscopic examination the tissue revealed itself to be an adenomyoma.

CARDIFF MEDICAL SOCIETY.

A MEETING of this Society was held on May 13th, with Mr. WILLIAM MARTIN, the President, in the chair.

Dr. HERBERT EVANS read a paper on

Heart-Block.

Beginning with a definition which included all varieties of intracardiac type, he proceeded to give a description of the anatomical points involved and of experiments carried out on the hearts of the frog and tortoise, whereby several kinds of block had been produced. This was followed by a classification into types according to the anatomical lesion or grades from the clinical standpoint. These were illustrated by a series of lantern-slides and electrocardiograms, and their usefulness in giving the exact location of any interference in the conduction system was demonstrated. In discussing the ætiology a large number of cases were referred to, and the predominance of males over females was noted. The majority of cases occurred in men over 45. Of the causative conditions chronic myocarditis was the commonest, then came chronic valvular lesions (mitral stenosis), chiefly rheumatic, arterio-sclerosis, syphilis, acute infections, and over-administration of digitalis. Stress was laid on the fact that heart-block was but rarely a separate entity and should be regarded as a part of other cardiac involvement. There were very few symptoms associated with heart-block, and these only occurred in the high grades; they were due to the slow ventricular rate which, when below 20 beats per minute, caused cerebral anæmia, a suspension of the mental functions, and a possibility of fits. This constituted the Stokes-Adams syndrome, which, however, was not synonymous with heart-block since the majority of cases never had fits. In addition the general nutrition suffered and the mental aspect became affected. The symptoms usually met with were those of the associated cardiac lesion, which should be sought for in all cases.

The diagnosis of complete block was generally straightforward. That or the other types was best arrived at by means of special instrumental methods, although there were often suggestive signs —e.g., a pulse-rate below 50, dropped beats, which had to be distinguished from premature contractions. A sudden drop in pulse-rate during the course of or during convalescence from acute infections was always suggestive. In auricular flutter, a condition in which block frequently existed, the pulse-rate was often rapid. From the prognostic point of view, heart-block per se did not kill. The general condition of the cardiac muscle had to be taken into account. It was only a sign that the conducting system had become involved. High-grade block with serious cardiac lesions rendered the prognosis grave. Danger was likely to arise during the change from a partial block to complete block, and also during the state of "status epilepticus," or when arising during convalescence from an exhausting illness. Cases of block were known to live for many years. The greater number of cases died from general cardiac failure, with its accompanying signs. Treatment was for the most part singularly ineffective. Cases in which syphilis was the possible cause were likely to receive great benefit from suitable treatment. During attacks of block rest in bed was essential. Chronic cases were often able to carry on, but usually their power was limited. In the mild cases digitalis could be safely given, although the degree of block was increased. No treatment for the fits had yet been found. Atropine had been suggested. Patients should be warned of the possible dangers that might arise from these fits.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

JOINT MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.

THE DIAGNOSIS AND TREATMENT OF INTRATHORACIC SUPPURATIVE CONDITIONS.

A JOINT meeting of the Sections of Medicine and Surgery was held in the Royal College of Physicians of Ireland on May 9th. The President of the Medical Section, Dr. T. GILLMAN MOORHEAD, was in the chair.

The PRESIDENT, in opening the discussion, referred to the difficulty in diagnosis of post-pneumonic empyema arising from the fact that the physical signs so often differed from those which were usually accepted as characteristic of fluid in the chest. In many cases loud tubular breathing, and even crepitus, could be heard over encysted collections of pus. In every case of doubt exploratory puncture should be performed. This procedure he regarded as

absolutely free of risk, in spite of the alarming and dramatic reports of sudden collapse due to pleural shock which were from time to time recorded. Most of the text-books insisted that anæsthesia was dangerous, and as a matter of fact it was very seldom required, but in dealing with young children he had often found that general anæsthesia was necessary, and he had never experienced the least distress or harm to the patient as a result. He expressed the opinion that, except in cases of very small empyema, surgical treatment was always essential. In the past he had tried again and again to cure cases by repeated aspiration, coupled with vaccine-therapy, but never with good results, and in consequence he was an absolute disbeliever in this method of treatment. In acute cases following pneumonia aspiration might be required to tide over the acute period, but as soon as possible an opening operation should be performed. He then referred to some cases of acute chest arising from the rupture of small pleural abscesses into the general pleural cavity, a condition with which one had become familiar during the influenza epidemic, and which had proved the cause of sudden death in many cases during the course of that epidemic. In conclusion he dealt with the diagnosis and treatment of pulmonary abscesses.

Sir W. DE COURCY WHEELER said that he would not touch on the ætiology or the bacteriology, although surgical treatment depended largely on the particular organism found in empyema. He attached some importance to the maintenance of a negative pressure and airtight drainage in cases of empyema. In young children he employed the method recommended by Poynton and Reynolds with his own modification of the trocar and cannula. The trocar and cannula were plunged into the chest between two ribs, and a rubber tube of larger diameter than the cannula, with a lateral eye, but tied at the end, was stretched on a ramrod and introduced through the cannula into the chest. The cannula was fixed to the chest by means of a flange tied with tapes round the chest. The tube was connected with a two-bottle drip-pump, producing a negative pressure of about 8 mm. of mercury. There was no change of dressing until the cannula was finally removed in about a week. In cases where rib resection was necessary airtight suction drainage could also be obtained by passing a rubber tube through a finger-stall with large rubber flange from which the top had been cut off, mastisol being used for sticking. Chronic cases could be treated by (1) Carrel-Dakin method, (2) decortication of the lung, (3) Estlander's operation. In conclusion he discussed the treatment of pulmonary abscess.

Sir JOHN MOORE agreed with the President regarding the frequency of empyema in cases of diplococcic pneumonia infections, especially in children. These cases, if taken in time, generally did extremely well. He always had found the greatest difficulty in differentiating between empyema and hypophrenic abscess.

Mr. R. A. STONEY said that during the late war he was stationed near a depôt where there was a bad epidemic of pneumonia among African soldiers. A great number of the cases had ended fatally, and most of those who did not, developed empyema. He then saw the condition which had been described by old writers as "empyema of necessity," because in a great many of the cases the empyema had been present for so long that it had burst itself, and was discharging through the chest wall. He had found hypochlorite solutions very useful in these cases. He also found that empyema could be cured without obliterating the cavity of the pleura. He washed these cases out daily, and the discharge was reduced pretty rapidly, but in one case the tube came out during dressing, and owing to difficulty in getting it back he had left it out. The patient's temperature did not rise, and there was no further discharge of pus from the cavity. He concluded that the cavity had become sufficiently sterilised to allow the curative power of the pleura and its secretions to destroy any infection left behind. He agreed that vigorous and early operation should be undertaken. He personally removed a piece of rib in every case, whether child or adult, generally a piece of the eighth or ninth rib in the back. He washed out the pleural cavity thoroughly and put in a double tube, making a tight closure of the wound round the tube. He gave the patient respiratory exercises as early as it was possible to do so.

Sir WILLIAM TAYLOR said that free needling of the chest was certainly a help in the diagnosis of cases of empyema. He had only once experienced any ill-effect after needling, and that was in a case when almost directly after the needle had been put in the patient brought up blood and nearly suffocated. Morphia was given and the patient recovered. He never hesitated to needle a case several times, and he put in the needle inches deep. He thought the bacteriological standpoint was an important one in connexion with the surgical treatment of empyema. If the case was tuberculous, it was best left alone. If the infection was found to be purely pneumococcal, he believed in opening the chest very widely and freely, removing every particle of fibrin round the chest, sponging it out with disinfectant, and then sewing it up. He generally aspirated the patient within 24 hours, and again within 48 hours if necessary, and allowed the patient up within five days.

Dr. V. M. SYNGE said that he thought that in cases of small localised empyema a sign of some importance was the presence of ægophony. In cases of encysted empyemata X rays were very helpful in localising the pus. Sometimes when no pus was discovered the needle was found to be blocked by a piece of skin. It was well to have ½ c.cm. or 1 c.cm. of sterilised water in the syringe before inserting the needle, as this cleared the lumen and avoided getting skin on the needle. Empyemata in children were, he thought, frequently primary, as the condition was often found in cases where there was no history of pneumonia. It was said that streptococcal empyema was more serious than pneumococcal empyema, but he personally thought there was not much difference, as cases of one got well as quickly as cases of the other.

Mr. W. PEARSON said that a surgeon should satisfy himself as to the details of diagnosis, and not merely be content with the diagnosis given to him by the physician. Encysted empyema should be felt for when less pus was found than was expected. There was not much to choose between the scapular line for drainage and the axillary region, but he preferred the latter as it caused less discomfort to the patient.

Mr. HENRY STOKES had not found X rays of the least help in diagnosis of these cases. He did not think it was necessary to resect ribs.

Dr. T. G. HARDMAN said that he found X rays one of the most important methods of diagnosis. At private houses, of course, it was only possible to take photographs, but screening was even more useful. It was not possible, of course, to differentiate by means of X rays between a serous effusion or a purulent one, and for this one had to rely upon the clinical diagnosis. There was, however, very little difficulty in diagnosing free fluid in the pleural cavity by X rays. As the fluid increased in quantity the fluid line became more and more opaque, and it could also be seen whether the fluid was free in the pleural cavity or not. The condition of abscess of the lung was extremely difficult to demonstrate by X rays, and a great deal depended on the position of the abscess. But in some cases it was possible to make a definite diagnosis of abscess, as even if the cavity itself was not shown, the area round it was. It was not, of course, possible to diagnose an abscess which was lying under an effusion, and the greatest difficulty was experienced in cases where there was fluid and consolidation, as one obscured the other.

Dr. C. J. MURPHY said that within a year he had had six cases of intrapulmonary sepsis, and he had found that elevation of the foot of the bed was extremely successful.

Mr. DENIS KENNEDY said he thought empyemata in children and in adults were quite different things. Aspiration relieved the patient during the acute phase, and after this had been done he thought that ordinary drainage for a short time should be sufficient.

Dr. LEONARD ABRAHAMSON said that he had recently treated two cases of intrathoracic suppuration. The first was a case of purulent pericarditis in a child who was admitted to hospital with an abscess on the hip, and when the abscess was opened the pus was found to be due to *Staphylococcus aureus*. The abscess had been noticed after the child had had a fall, but before the fall the child had had a gum-boil, and on examination it was found that there was an abscess over one of the teeth. The pus in this was also found to be due to *Staphylococcus aureus*. The pericarditis could not be treated by surgery, as the patient was too ill. The second case was an alcoholic man who developed pneumonia. An abscess formed on the lung, and pus was aspirated from it. The whole of the chest wall showed interstitial empyema. On incision the muscles of the chest wall were found to be full of pus. They went on suppurating for some time, and then the patient died from exhaustion. He thought that a needle should never be put into the lung unless one was prepared to operate afterwards. If an abscess was towards the upper part of the lung he thought it should be left alone, but if it was at the base of the lung, then surgery was indicated.

Dr. H. T. BEWLEY said that he also felt that aspiratory treatment of empyema was futile in most cases. He had recently seen two cases, both of them children, with pure pneumococcic empyema. At first, on aspiration, opalescent fluid was removed, but this re-accumulated, and on the second occasion pure pus was removed. Neither of these cases benefited by aspiration, but they were both operated on and were quite well within a fortnight.

Reviews and Notices of Books.

PEDIATRICS.

By Various Authors. Edited by ISAAC A. ABT, M.D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. London and Philadelphia: W. B. Saunders Co. 1923–1924. Vol. I., pp. 1240; Vol. II., pp. 1023; Vol. III., pp. 1051. 8 Vols. £18 per set.

THIS encyclopædia of the diseases of children, prepared for the practitioner, the student, and teacher, is composed of a series of monographs by writers with special knowledge of their subject. An attempt has been made to cover not only the internal diseases of children, but also subjects of surgical interest, and this encyclopædia may come to displace the only other encyclopædia on children's diseases written in English—that by Keating prepared in 1889.

Vol. I. starts with a monograph on the history of medicine by Fielding H. Garrison, wherein the history of pædiatrics is traced to the present time. It will be of some interest to readers in this country to discover which are the names among British and foreign pædiatricians which the writer—an American—considers of sufficient note to deserve mention; certainly many names which one would have expected to find have been omitted. After a chapter on Congenital and Acquired Predispositions and Heredity by Clarence Little, and one summarising with great care and numerous illustrations the Anatomy of the Infant and Child by Richard E. Scammon, T. Brailsford Robertson deals with Growth and Development. He gives an admirable description of the general characteristics of the growth process, and points out that the growth of children and animals takes place in spurts, separated more or less distinctly from one another by periods of languid growth. In the first half of gestation growth is slow; the second half shows extraordinarily rapid accretion of tissue which continues up to the first year of extra-uterine life, when a slackening of growth occurs. At the third, fourth, and fifth years the pace of growth increases greatly, is followed by a pause, and then once more extreme rapidity of growth is shown during adolescence. Reference is made to vitamins and general environment as factors influencing growth. Chapter V. consists of a discussion by John R. Murlin, of Rochester, N.Y., on the Physiology of Metabolism in Infancy and Childhood. For this chapter alone this book is worth purchasing, so clear and complete are its contents.

Jesse McClendon deals with the Application of Physical Chemistry to the Physiology of Childhood. This short monograph covers the subject of the hydrogen-ion concentration of the alimentary tract, the blood, and other body fluids. The Hygiene of the Home is then discussed by Walter Reeve Ramsey, and the Hygiene of the School Age by Josephine E. Young, of Chicago. An excellent portion of this chapter touches on mental hygiene, when Dr. Young shows a clear insight into the problems of the school medical officers of this country as well as those of her own. A few pages are devoted to the teaching of sex hygiene and sex delinquency. The chapter concludes with notes on the hygiene of instruction of writing, reading, the hygiene of the kindergarten, manual training, play, clothing, school architecture, heating and ventilation, swimming-pools, and open-air schools. These latter are in many cases established on the roofs of the tall buildings in some of the crowded cities and great benefit is derived by the children. The Hygiene of Infants is dealt with by W. R. Ramsey, and Climatotherapy by F. L. Wakeham. A chapter by H. Winnett Orr on Hygiene of Crippled Children completes this volume.

Chapter XII., which opens Vol II., consists of a monograph on the Mortalities of Infancy by R. A. Bolt. History-taking and Physical Examination of Infants and Children is then discussed by Mark Jampolis, and Cerebro-spinal Fluid by Abraham Levinson. Roentgenology in Pediatrics is admirably dealt with by F. C. Rodda. More than 60 photographs illustrate the diagnosis of tuberculosis, foreign body, atresia, &c., by this means. No detailed mention, however, is made of the aid which may be gained from X rays in the diagnosis of congenital pyloric stenosis or duodenal stenosis, and the photographs are confined to the thorax. In Chapter XVI. John Diven discourses in somewhat aimless fashion on Peculiarities of Disease in Childhood. This chapter would seem to be redundant. On the other hand, another general survey on Prophylaxis and Treatment, by L. R. De Buys, is excellent. The author affirms that the diseases of the newly born belong to the pædiatrician, and that the obstetric interest in the mother may deprive the child of the special consideration which it should receive were it placed immediately under the care of a trained pædiatrician.

Therapeutics are discussed under the headings of Aerotherapy, Climato-therapy, Dietotherapy, and Psychotherapy. Under Therapeutic Technique, Gastric Lavage, Enemas, Lumbar Puncture, &c., are described and illustrated. Drugs are classified according to their action, and a list occupying 20 pages give doses suitable for children aged 6 months, 1 year, 18 months, 2 years, and 3 years. This chapter will be of the utmost service to the young pædiatrician. Heliotherapy is dealt with adequately by Henry Dietrich, and Diseases of the New Born by N. O. Pearce. Then follows a chapter on the Premature Infant by Julius H. Hess, which is one of the most complete monographs on the subject which we have had the good fortune to read, for the author has an intimate first-hand knowledge of his subject. Several pages are devoted to the physiology of the premature infant, followed by an account of the pathological lesions and defects common in these infants. A full description of the requirements of a hospital nursery unit should be especially valuable to those hospitals contemplating

the addition of cots. Hess believes that the outlook for premature infants on anything but breast milk is extremely poor. Prognosis as to life and future mentality are fully discussed. The following three chapters deal with feeding problems. The Chemistry and Biology of Milk, Breast Feeding and Nutrition, and the Artificial Feeding of Infants, by J. Sedgwick and W. Cole, point out that "through creating the proper demand on the breast we can in all cases produce some breast milk for every child at least for a time"; and this statement will nowadays be generally accepted as correct. It is interesting to note that the authors do not consider that the mother's milk-supply is affected by emotional upsets, only indirectly in so far as her general nutrition is affected. J. Brennemann cites the well-known fact that if only a small amount of human milk is added to the food of an artificially fed baby, the baby will tend to thrive as though fed only upon the breast. Many pages are devoted to the physiological behaviour of the different food elements of cows' milk as compared with those of human milk and their modification and adaptation in the artificial feeding of infants. This author considers that starch may be given to an infant in small amounts from the second month, and that the benefit following its use is due to the prevention of large curd formation. The behaviour of protein is discussed at some length, and the author would not place at its door the many ills which some of the most modern pædiatricians would attribute to this element.

A chapter on Diabetes Mellitus contains a too meagre description of the use of insulin. Diabetes Insipidus, Sea-sickness, and Beri-beri are ably dealt with. In the chapter on Acidosis, by John Howland and W. McKim Marriott, of St. Louis, a difficult subject is dealt with in a most able manner. T. C. Hempelmann, who discusses Obesity, lays little stress on the subject of hypopituitarism or Fröhlich's syndrome, but is otherwise helpful. Chapters on Infantile Scurvy, Rickets, and Pellagra follow, and the volume is concluded by a discussion on Constitutional Diathesis of Childhood, and a note on Acrodynia.

In Vol. III. the study of gastro-intestinal physiology and pathology leads naturally to a full discussion of nutritional and digestive disturbances. Lesions of the mouth, tongue, nose, and pharynx, congenital and acquired, are excellently described—the chapter on orthodontia or facial orthopædics being noteworthy. Diseases of the glands associated with the intestinal tract receive attention, and eight chapters on the investigation of normal and abnormal conditions of the respiratory tract conclude a volume that comes well up to the standard of those previously issued.

Never before in any series of monographs on children's diseases in English has an attempt been made to cover the ground with such thoroughness and at the same time to preserve such clearness of outlook. Success has been achieved by careful choice of the writers, and by the fact that their individual viewpoints have been preserved. Those who require to refer constantly to literature on pædiatrics will do well to supply themselves with these volumes.

DISEASES OF THE RECTUM AND COLON.

By P. LOCKHART-MUMMERY, F.R.C.S. Eng., M.B., B.C. Cantab., Senior Surgeon to St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum. London: Baillière, Tindall and Cox. 1923. Pp. 872. 25*s*.

As the author points out in his preface, this new publication takes the place of two former ones, one on diseases of the rectum and the other on diseases of the colon. The combination of the two books in one volume avoids much repetition, since it is impossible logically to separate diseases of an organ as a whole from those of its terminal part. The new volume, in which the whole subject has been revised, will, we think, become one of the standard English books upon the subject. It is full, well illustrated, and eminently readable, although there are indications that the earlier chapters have been less carefully prepared than the later ones. The great wealth of clinical material at St. Mark's Hospital has caused the author to regard it as unnecessary to quote the experience of other surgeons at other hospitals; references to other works are very scanty. This is a matter of less moment in so far as the practice at St. Mark's Hospital is now very generally followed, except, perhaps, in one particular, that exception being the operative treatment of cancer of the rectum. Mr. Lockhart-Mummery advances cogent reasons for preferring the perineal to the abdomino-perineal excision, the chief of these being the undeniably much higher mortality of the latter operation. The abdomino-perineal operation is admirably described and cases of his own are quoted by the author, but the reader is left somewhat in doubt as to what proportion of cases and which cases call for this very drastic procedure. One is given the impression that the abdomino-perineal operation is now very rarely performed at St. Mark's Hospital owing to the comparative success of the perineal operation in the author's hands. In this chapter the lack of a more extensive review of other surgeons' work is felt.

The book will be useful both to general practitioners and to medical students, and especially so to the general surgeon who is called upon to operate in circumstances where his special experience has not lain.

DIAGNOSTISCHE UND THERAPEUTISCHE IRRTÜMER UND DEREN VERHÜTUNG.

Vol. II.: "Psychiatrie." By Geh. Med.-Rat. Prof. Dr. E. MEYER, Direktor der Psychiatrischen und Nervenklinik der Universität in Königsberg. Second edition. Leipzig: Georg Thieme. 1923. Pp. 119.

As may be gathered from the title of the series in which it appears, Dr. Meyer's publication is a manual of differential diagnosis in mental disease. The neurological aspect is particularly emphasised, very detailed considerations of physical signs being given. By far the longest chapter is devoted to the diagnosis of dementia præcox.

L'ANNÉE PSYCHOLOGIQUE.

23me année. Paris: Librairie Félix Alcan. 1923. Pp. 644. Fr.40.

WITH this number is resumed the publication of a useful annual. It opens with five original monographs on experimental psychology by French writers, proceeding then to a critical analysis of the world literature for the year ending in October, 1922. Applying an obvious test, one finds that little of note in the Transactions of English societies or in specialist journals has escaped mention. A gap in scientific records is filled by a bibliography of German writings from 1914 to 1920.

Psycho-analysis is regarded as outside the sphere of psychology; except for a reference to Raymond de Saussure's book, no information is given as to psycho-analytical literature, and this limits the usefulness of the publication; otherwise it is a work of reference which will be of value to investigators and students of all nationalities.

RIGHT FOOD THE RIGHT REMEDY.

By CHARLES C. FROUDE, B.Sc. With an Introduction by ROYAL S. COPELAND, A.M., M.D., formerly Commissioner of Public Health, New York. London: Methuen and Co. 1924. Pp. 301. 7*s*. 6*d*.

WE are not at all favourably impressed by this book. It is a popular book, and as such, we cannot and do not expect it to be very profound. But even in a book for the multitude, we do expect the author to display some knowledge of the modern aspect of his subject, and we look for that feature in vain in the work that lies before us. One passage may be quoted as typical of its contents (p. 55): "Improper elimination also means that harmful deposits are often

formed within the body. Many of the more hearty and staple foods—such as meat, eggs, bread, and the legumes—often decompose before they can be digested, due to their deficiency in food salts—the salts which are antiseptic or antifermentic. The raw fruits and raw vegetables are rich in antiseptic or antifermentic food salts, and if eaten with the staple or hearty foods, will lessen, or counteract, this decomposition. . . . . The question receives consideration under the name of 'vitamins' and other terms, but it is the same truth which Dr. J. H. Tilden, since he brought it out many years ago, has been teaching and practising." What are these "antiseptic or antifermentic food salts"? And even if such exist why does the author claim that they have any relation to the vitamins? We cannot even guess at the meaning.

DIE ZWILLINGSPATHOLOGIE.

Ihre Bedeutung, ihre Methodik, ihre bisherigen Ergebnisse. Von Dr. HERMANN WERNER SIEMENS, Privatdozent für Dermatologie an der Universität München. Berlin: Julius Springer. 1924. Pp. 103. $1.90.

As the author somewhat pathetically remarks in his first chapter, "mit dem Menschen kann man keine Vererbungs-experimente machen." This being the case, the assessment of the relative importance of hereditary and environmental factors is a matter of much greater difficulty in man than in animals and plants. In twins, at any rate of the uniovular variety, Nature has provided pairs of individuals who, so far as heredity is concerned, may be regarded as having started existence under identical circumstances; any differences between the members of such a pair may be looked upon as the effects of factors other than heredity. From the psychological and sociological standpoint, observations as to differences in mentality and character between twins are on this account of particular interest. In this book the author has endeavoured to extend the method to pathology and, in fact, to establish a whole system of "Zwillings-pathologie." It is, of course, obvious that the subject is merely a part of the whole pathology of heredity, in the laying of the foundations of which Nettleship and other English observers long ago did such important work. The author gives due credit to the work of the pioneers, and has added many observations of his own, mostly, it must be admitted, of a rather negative nature. It is difficult, for instance, to comprehend the value of the observation that of two twins one died of chronic pancreatitis at the age of 35, and the other did not. However, that knowledge may grow, someone, presumably, has to note these things.

RELIGION AND THE NEW PSYCHOLOGY.

And Other Addresses. By N. BISHOP HARMAN, M.A., M.B., B.Ch. Cantab., F.R.C.S. Eng. London: The Lindsey Press. 1924. 2s. 6d.

IN this little book Mr. Bishop Harman has attempted to state from a medical standpoint some of the views of life current to-day in our society, and he uses a wide experience of affairs in a comparison of these views with religious experiences, and particularly with religious intuitions, which, by as much as they are hard to define, possess also a corresponding influence over men's minds. The book contains three essays or addresses and ends with a very brief but dignified religious confession. As Mr. Harman says in the opening paper, an address given before the National Conference of Unitarian and Free Christian Churches and afterwards published in *The Hibbert Journal*, it is necessary, if we are to understand the fundamentals of modern psychology, to have a working knowledge of biology. He arrives at the conclusion that the soul conception, if it cannot be proved, cannot be disproved, while pointing out that belief in that conception is fundamental in the peoples who have sought to guide their steps by the light of intelligence.

The book is short and simple, though dealing with the most difficult problem before us all; it should be really helpful.

TO VENICE AND BACK IN A TWO-SEATER.

By E. HALFORD ROSS. London: Cassell and Co., Ltd. 1924. Pp. 240. 6s.

WE should not have thought that the intention of the author and his wife to spend a holiday on the Continent with the assistance of a two-seater would have led a large circle of acquaintances to insist that the idea was ridiculous. Surely it has been done before, and surely it will be done again; and possibly the absence of all misadventure, which is remarked upon by Dr. Halford Ross, may encourage others to do likewise and to pass along similar routes. Certainly, the places visited in the itinerary undertaken by Dr. Ross and his wife are well worth seeing, and while people who travel on the Continent with any regularity will have visited many of them, most of them possess an attraction as vivid for old friends as for new visitors. The chronicle makes the kind of rambling diary which is agreeable reading for the personal friends of a traveller, when quite small beer acquires a flavour from private knowledge of how so and so will take such and such an event—the thing that is not worth recording publicly may have a particular application in the case of a particular chronicler. Occasionally this little book is funny in a primitive way, and occasionally the author is unnecessarily informative, for surely quite a lot of people know who Rousseau was and what is the use of circular letters of credit; the comparative size of mortals and mountains has been widely observed, and reflections of a similar character may be found in these artless pages.

Dr. Halford Ross supplies 19 little sketches, many of which are artistic in the way in which they secure their purpose without labour or detail.

JOURNALS.

JOURNAL OF INDUSTRIAL HYGIENE.—Old-time stories of quicksilver mines, where only slaves and convicts could be employed, add interest to a paper in the March issue by Dr. A. Hamilton on the Mercury Mines of California. The metal occurs chiefly as sulphide of mercury or cinnabar, but also as the selenide, the monochloride, the iodide, and the telluride. In some mines "the silver runs free" and is found in droplets, but as these rich mines are hot, over 90° F., the danger from poisoning is too great for them to be worked. In the stress of war-time an attempt was made with serious results to the miners. Cinnabar is reduced by roasting when the metal distills off and is collected in condensers, but it penetrates everything and the men can only escape mercurialism by exerting personal care. Even so cases of poisoning occur from time to time, several of which are described in detail.—The main article in this number is a report on Bakers' Itch by Dr. A. C. Parsons, who investigated this trouble in Great Britain. He finds that an important influence is personal cleanliness, and does not blame any specific influence. Ordinary scabies in many cases has been called bakers' itch. The incidence was found greatest in congested districts and on old-fashioned premises where dough is made by hand, while cases were rare in well-equipped establishments. Contact with sugar and dough in the absence of washing caused skin rashes. Prevention lies in the use of dough machines and in the provision and use of washing facilities. In a few rare cases an intolerance of flour proteins develops, which prevents continuance of employment. The article is well illustrated and contains valuable information.—A capable article upon the difficult subject of sickness insurance statistics, by Dr. L. Teleky, Düsseldorf, completes a truly international number.——In the April issue Miss M. Smith reports on a study in activity and fatigue conducted in the laundry trade. The paper is well illustrated and the data collected by devising tests applicable to the industry are clearly marshalled. Energy as measured by output was found to slow down at the end of the day. Official rest-pauses are reported as beneficial.

The general health of laundry workers was found to be fairly satisfactory.—The occurrence of blastomycosis as a complication of industrial injuries is exemplified by Dr. R. M. Carter from reference to three cases. This condition was first described in America and became known as the Chicago disease. No cases have yet been reported in Great Britain.—Dr. E. L. Kennaway contributes a long and important article on cancer-producing tar and tar-fractions. In it are detailed the results of intensive investigations for determining the noxious factor, but coal-tar presents so complicated a chemistry that the labour of trying out each constituent on mice has been immense. Industrial and experimental evidence agree in incriminating the higher boiling fractions distilling over from 250° to 500° C., but the exact cancer-producing substance has not yet been isolated. Something, however, has been achieved by narrowing down the scope for further research. The way in which field observations in industry and laboratory experiments on animals have been found to accord lends promise to further work on these lines.

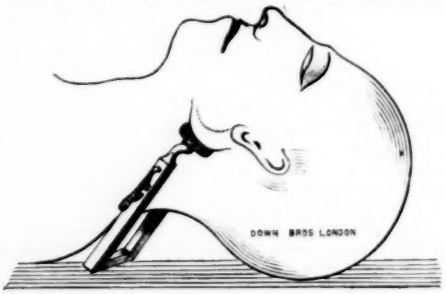
BRITISH JOURNAL OF ANÆSTHESIA.—With the present issue this journal completes its first volume. Dr. Dudley Buxton contributes to this number another of his very readable historical sketches. This deals with Snow and his work on chloroform, and we may heartily endorse the concluding paragraph: "To study Snow's work and follow it by studying the more recent experimental research would, the writer believes, prove most helpful to those who, not being experts, have relegated chloroform to the limbo of bogeydom and so lost the aid of a most valuable asset to their anæsthetic armamentarium."—Mr. S. R. Wilson discusses modern developments in anæsthesia and deals extensively with elaborate preliminary investigations to determine the patient's exact bodily condition and to forecast his behaviour during and after operation and anæsthesia. These investigations are of especial value in relation to myocardial deficiency.—The useful abstracts of current literature on anæsthesia are continued, and an index is supplied to the completed volume, on which its editor, Dr. H. M. Cohen, may be congratulated.

JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, March and April, 1924.—In the opening article of the issue for March Col. R. S. Hannay discusses a "manœuvre exercise," and Dr. H. M. Woodcock concludes his paper on the Rickettsia bodies.—Maj.-Gen. W. W. O. Beveridge publishes his presidential address to the Army, Navy, and Air Force Group of the Society of Medical Officers of Health, wherein he mentions many of the advances in military hygiene made since the war. The Director of Hygiene at the War Office is now responsible not only for the health of the accepted recruit, but for his medical selection and for his being watched during his training. It is hoped there will soon be a standard of mental capacity; at present some 60 per cent. of the recruits offering themselves are taken. During their five months at the depôts they are regularly weighed, and usually gain 10 lb., but lose weight if sick in hospital or when absent without leave. In future wars a sanitary section will be allotted to each division, and will be commanded by an R.A.M.C. officer, specially trained, but not necessarily a medical officer. The N.C.O.'s are termed sergeant or corporal sanitary inspectors, and the sections include tradesmen as bricklayers, carpenters, and sign-painters. The health of the army is improving, the death-rate is down to pre-war figures, venereal disease is down to 25 and scabies to 8 per 1000. Present-day temperance is responsible for much improvement in health and physique.—In the April issue Lieut.-Col. C. W. Holden gives an interesting account of the anti-malarial measures undertaken by the 22nd Division on the Macedonian front along Lake Doiran in the spring of 1918, specially stressing cresol as a better larvicide than oil.—Maj. W. H. B. Ritchie has a papér on the education of the corps, pleading for a general staff for the Army Medical Services to deal with war problems, operations, and training.—The Danish treatment of scabies, introduced by Dr. Svend Lomhelt, has been adopted as the standard treatment in the British Army, and has shortened time in hospital by a half or even more. The ointment, freshly made of sulphide of potassium and zinc in vaseline, lanoline, and paraffin, is smeared thoroughly over the skin, but is not rubbed in. There is no dermatitis, the parasites are at once killed, and the patients are cured in 24 hours. "No relapses have occurred" is the report from the Royal Herbert Hospital at Woolwich.—Col. S. F. Clark describes what he saw in a trip round Southern Arabia, including Socotra, which many have seen but few have visited.

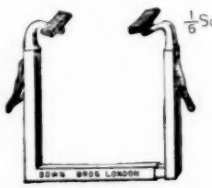
New Inventions.

APPARATUS FOR SUPPORTING THE JAW DURING ANÆSTHESIA.

THIS instrument has been designed to facilitate the maintenance of an adequate airway in cases in which the manual support of the jaw by the anæsthetist is inconvenient or demands an abnormal amount



of attention. In such cases the mechanical support of the jaw frees the anæsthetist's hands from performing a purely mechanical function, and allows him to concentrate more closely on the condition of the patient. This instrument will be found useful in operations on the eye, when complete immobility of the head is essential.



The support consists of two upright metal bars, the length of which can be varied at will, bent inwards at their upper extremities to form sockets in which the angles of the jaw rest. The sockets are covered with soft rubber pads to prevent pressure injury to the skin, and are capable of slight movements on a lateral and a vertical axis so that they can be more accurately adjusted to the contour of the bone. The lower extremities of the uprights are connected together by a transverse bar which can be adjusted to any length according to the width of the patient's neck. When the instrument is in use this bar rests upon the table just behind the patient's shoulders, which prevent it from slipping forward. The pressure on the angle of the jaw is then exerted in the proper direction—e.g., backwards and upwards—and by the correct adjustment of the length of the upright bars the force can be so regulated that it is just sufficient to keep the jaw in position, and no more. The instrument can be adjusted to the patient in a few seconds and when once applied does not need further attention. The appliance is, of course, limited to operations in which the patient is in the dorsal position.

Messrs. Down Bros., Ltd., London, are the makers.

E. H. P. CAVE, M.R.C.S. Eng.
King's College Hospital, London.

THE LANCET.

LONDON: SATURDAY, MAY 31, 1924.

THE LISTER INSTITUTE.

THE need of a combined histological and serological effort in order to elucidate the mechanism of natural defence to infection was stressed by Prof. J. C. G. LEDINGHAM in his presidential address [1] to the Pathological Section of the Royal Society of Medicine in 1922, and in the annual report for 1924 of the Lister Institute of Preventive Medicine the results of some of his investigations on these lines are indicated. With a view to determining the validity of alleged specific affinities or tropisms of certain viruses for particular tissues, he has recently been studying the tissue changes at the site of inoculation in vaccinia, the virus having been introduced intracutaneously. It is not stated what animal was used. It has been ascertained that it is the reticulo-endothelium system which is primarily involved, the epidermis escaping unless the horny layer is sufficiently permeable to allow the passage of the exudate to the surface to form a scab or vesicle, in which case the epidermis is only secondarily implicated. The surgical removal of skin lesions at daily intervals has enabled the progressive changes to be studied from the day of infection onwards. In the same department Dr. J. A. ARKWRIGHT, working with Dr. S. S. ZILVA, is studying the influence of diet deficiencies on the inflammatory response of skin and subcutaneous tissues to bacterial and toxic stimuli. This work also should have an important bearing on the solution of problems of natural immunity. Among the many other researches under weigh in this (the bacteriological) department are those of Dr. E. E. ATKIN on the relation between differences in serological grouping as exhibited by strains of meningococci and gonococci with cultural peculiarities, and an attempt to elucidate the histogenetic relationships of the mammalian blood platelet by Dr. S. P. BEDSON and Miss M. E. JOHNSTON. With Dr. ZILVA, Dr. BEDSON has carried out further experiments on the question of platelet reduction in vitamin-A deficiency, but has failed to confirm the alleged grave implication of these elements. Dr. E. H. LEPPER and Dr. M. L. COWAN have outlined work undertaken by them at this Institute at a recent meeting of a society reported on p. 1105 of this issue of THE LANCET.

In the department of biochemistry, directed by Prof. A. HARDEN, patient work on the accessory food substances had laid bare certain intriguing and crucial facts, though the isolation of these substances has not yet been achieved. For example, using rats as the experimental animals, it has been found that while wort usually contains the anti-neuritic vitamin, it is absent from the finished beer. Significant progress has been made by Dr. ZILVA in the fractionisation of the antiscorbutic factor in lemon-juice. It is now possible to reduce the total solids of lemon-juice from about 9 per cent. to about 0·04 per cent., without appreciably diminishing the antiscorbutic activity. A method has been devised which renders it possible to store concentrated antiscorbutic preparations without any loss in potency, and successful clinical results have been obtained by the use of such stored preparations. Evidence appears to be accumulating that Prof. E. V. MCCOLLUM'S conclusion that the growth-promoting and the antirachitic factors are not identical. Inactivation of these two principles by heat and oxygen proceeds at different rates and their quantitative distribution in spinach is also different. Moreover, Dr. R. WAGNER and Dr. H. WIMBERGER, whose clinical studies on rickets in Vienna will shortly appear in our columns, have demonstrated that cod-liver oil, oxidised to the point at which 95 per cent. of the vitamin A is destroyed, possessed therapeutic value against rickets not obviously inferior to that of the untreated oil, thus providing additional evidence for the existence of two separate principles, (1) growth promoting, (2) rickets preventing, in cod-liver oil. The difference in the antirachitic value of milk, as the food conditions of the cow yielding it is changed from pasture to winter fodder and vice versa, were found by Dr. ETHEL LUCE to be considerable, and Miss M. A. BOAS, working with young, growing rats has done complementary observations on the growth-promoting factor which show that cows' milk varies according to the diet of the animal in respect of this factor also. Prof. V. KORENCHEVSKY, with the assistance of Miss M. CARR, has investigated the influence of qualitative deficiencies in the diet given to parent rats upon the number, weight, and composition of the young, concluding that the father's diet before conception has no effect, but that the diet of the mother before conception and during pregnancy influences the number and weight of the litters, but not the percentage of H_2O, Ca, P, and N in the young at birth. The mother evidently sacrifices her own tissues to produce offspring of approximately normal composition. Prof. C. J. MARTIN, the Director of the Institute, was engaged in the earlier part of the year in experiments to determine the limiting conditions as regards temperature, moisture, and air movement for a man to work at the rate of one-tenth horse-power, which is the performance of a good miner or navvy. The results of his observations were incorporated in a presidential address to the Hygienic Section of the Pan-Pacific Conference held in Sydney, where the feasibility of white labour in the tropics and the hygienic problem of hot mines were discussed. The problem of consistently producing a good diphtheria toxin has continued to occupy the attention of the department for the study and preparation of antitoxic serum; also the search for a more satisfactory method for the standardisation of anti-dysentery serum and for the best way of estimating the therapeutic value of antimeningococcus sera. A new laboratory at Acton, Marazion, Cornwall, has been constructed and equipped, where the preparation and study of antivariolous vaccine will in future be undertaken.

There are still those, however, who doubt the immediate practical value of researches carried on at an institute detached from hospital beds, and protest that work conducted in such institutes tends to become academic. To show how invalid is this argument, we may select from various parts of this report a few notes showing clearly that the Director and his colleagues are alert and eager to test experimentally any new or revived method that might be of value in therapeutics. Several remedies appear to have been tried out on sick animals, or experiments have been devised to test the validity of the theory on which their administration is based. Dr. A. L. SCHÜTZE has in the past nine months tested the reputed therapeutic value of Dreyer's diaplyte

[1] THE LANCET, 1922, ii., 898.

vaccine on tuberculous guinea-pigs. No evidence has been obtained that the course of the disease in these animals is favourably modified by this treatment. Again, the sodium salts of various fatty acids in soap form have been claimed to exert favourable and healing action on diseases due to acid-fast organisms (tuberculosis and leprosy). The selective action of fatty acids on acid-fast bacilli is striking, but as a result of investigations on the potency of a series of these acids from a variety of sources in inhibiting the growth of tuberculosis in artificial culture it does not appear that any particular soaps are more efficient than others in this respect, equally good inhibiting results being obtained with derivatives of cotton-seed oil as with chaulmoogra oil. Miss JOHNSTON has been engaged on a problem which intimately concerns the practice of serum therapy and serum prophylaxis—that is, the influence of the previous injection of serum, whether normal or immune, on the effective action of a subsequent injection. Her results show that the loss of effective action from a subsequent dose which may occur when a previous dose of normal serum has been given can be explained solely by the development of antibodies to the original serum proteins injected. The immunity is not of the nature of an anti-antibody reaction. Dr. A. HUNTER BROWN is devoting himself to the study of the efficiency of immunisation methods by the cutaneous route, for which claims have recently been made by BESREDKA; and lastly, it has been found that the value of antimeningococcus serum appears to depend not only on type, but also largely on the strain used for immunisation of the horses; and it has been decided in future to use as many unrelated strains as possible for the production of therapeutic sera.

We have only touched here upon a few of the scientific activities of the Institute. It should be added that the Medical Research Council has availed itself freely of these activities, providing seven whole-time workers and subsidising others, besides furnishing the salaries of the staff of the National Collection of Type Cultures which is housed in the Institute. Others whose business or pleasure it is to subsidise medical research on behalf of the community should not fail to note the excellent work being carried on at the Lister Institute of Preventive Medicine.

FUTURE OF THE INDIAN MEDICAL SERVICE.

THE Royal Commission appointed last year, with Viscount LEE as chairman, to inquire into the higher ranks of civil service in India has just issued its report.[1] The Commissioners were asked to inquire into the general conditions of the various services, into the possibility of transference of any of their present functions from the central to provincial government, and into the whole question of ensuring and maintaining the recruitment of Europeans and Indians for those services. They were instructed to assume the necessity for maintaining a standard of administration in conformity with the responsibility of the Crown and the acceptance of the declared policy of Parliament increasingly to associate Indians in every branch of the administration.

As far as the Indian Medical Service is concerned, the recommendations of the Commission can be summarised almost in a sentence. Contrary to the recommendation of the Verney-Lovett Committee, the Commission recognises that the medical needs of both the British and Indian armies in India should be provided for in future by the Royal Army Medical Corps (India) which should absorb the Indian Medical Service, no attempt being made to perpetuate that service as at present constituted. This recommendation is in accordance with the scheme elaborated by the late Sir CHARLES BURTCHAELL in 1919, and printed at length as an appendix to the present report. At the same time, a new civil medical service is to be constituted in each province recruited by competitive examinations held both in England and India. To meet the medical needs of British officers in the civil service and their families a minimum number of British officers is to be maintained in this civil medical service, the limit to be prescribed for each province by the Secretary of State, on whom in the last resort is to rest the responsibility for their maintenance. Of this British element, one half, or the number required for the military reserve (whichever is the larger), is to be reserved for British officers seconded from the R.A.M.C., the remainder being those succeeding in competitive examination. It is further recommended that, subject to the existing rights of present members of the Indian Medical Service, all scientific chairs in Government colleges and hospitals shall be thrown open to all candidates, the clinical chairs alone being reserved for members of the civil medical services so far as suitable candidates are available.

The report recognises the great part which the Indian Medical Service in the past has played in the civil life of the country, as the chief agent in spreading Western ideas of medicine, surgery, and sanitation, and as a centre of original research; but the difficulty in securing British recruits of late years has been very great. At the present moment there is, in fact, a shortage on the civil side of no less than 57 officers in the authorised cadre of 420. The Commission gives reasons for its belief that the Burtchaell scheme may be so adapted as to meet the requirements of each province for a separate civil medical service, as well as to provide the necessary nucleus of British medical officers, which is regarded as vital to the needs and contentment of the British civil service in India. The Commission calls for the establishment without delay of the statutory Public Service Commission, whose task it will be to undertake the recruitment of personnel, as well as to establish and maintain proper standards of qualification for admission. Indianisation of the medical service of India, it is recognised, must be a long and steady process. But the position has altered to such an extent from the time of the Islington Commission that the question is no longer how many Indians should be admitted into the service, but what is the minimum number of Englishmen which must still be recruited.

[1] East India (Civil Services in India): Report of the Royal Commission on the Superior Civil Services in India. London: H.M. Stationery Office. Cmd. 2128. 5s.

THE WHITE MAN IN THE TROPICS.

THAT a tropical climate has a depressing or an injurious effect on the white colonist is generally acknowledged. Prof. C. EIJKMAN, in a recent lecture[1] delivered in London, put the position aptly: "The state of weariness and listlessness coupled with psychical irritability, to which the European gradually becomes subject in the tropics, has always reminded me of the syndrome to which has been given the name of neurasthenia or nervous exhaustion." A similar conclusion—i.e., that the chief stress of a tropical climate falls on the nervous system—was reached by Dr. ANDREW BALFOUR in a series of lectures delivered last

[1] THE LANCET, May 3rd, 1924, p. 887.

June at St. Bartholomew's Hospital. We have, therefore, to deal with this effect even if there is no disease due to parasite or bacterium. It is difficult, however, to elucidate how or why such nervous symptoms arise. Anæmia is not responsible, since Prof. EIJKMAN states there is no purely physiological anæmia of hot countries. He also failed to detect any difference between tropical and temperate climates as regards chemical heat regulation of the body—that is, in metabolism and heat production. The food requirement is, with about similar labour conditions, as great in hot as in temperate climates. Prof. EIJKMAN'S own basal metabolism, examined in winter in Holland at room temperature of 9° C., appeared to be the same as it had been two years before in a temperature of 27·5° C. in Batavia. Other observers, however, have obtained higher figures for temperate climates than for tropical climates. Of interest in this connexion are the researches carried out by Dr. LEONARD HILL and his co-workers on the effects of exposure of the body to variations in rate of external cooling as measured by the kata-thermometer. Their results showed that such variations in temperature as Prof. EIJKMAN employed—i.e., 9° C. and 27·5° C.—were not sufficient to affect metabolism of a clothed man in still air; and that the exposure of the clothed body to two or three times this rate of cooling caused a definite rise of metabolism. They also found that exposure of the naked body to the open air during summer in England increased bodily metabolism by 20 per cent. or more.

Dr. LEONARD HILL has pointed out that many people in temperate climates were really living in a tropical climate through overclothing their bodies and shutting themselves up indoors. One would hardly expect the metabolism of such individuals to be higher in the temperate than in the tropical zone. Dr. HILL, indeed, advocates greater exposure of the body to open air for the very purpose of counteracting national deterioration. Prof. EIJKMAN considered that observations carried out whilst doing heavy muscular work might throw more light on the subject; he obtained some evidence from a few experiments that during heavy work efficiency is lowered under warm conditions. He has also obtained definite evidence of differences in behaviour of the sweating mechanisms of white and coloured man, in other words, in the physical—as opposed to the chemical—regulation of body heat. He found that although Europeans and Malayans had about the same number of sweat glands per unit of skin surface, the Europeans lost more water, and therefore more heat, by insensible perspiration than the Malayans; on the other hand, the Malayans lost more heat by conduction and convection; these differences were independent of the quantity of water taken. The chief differences between the two races consisted, therefore, in the function of the skin; the coloured man was by his pigmentation better protected against the chemically active rays of the sun and he was not so subjected to excessive sweating. Water regulation may therefore play a leading part, but one must guard against theorising in this direction at the present stage. Some other recent researches on this subject are to the point. J. S. HALDANE and K. N. MOSS found that great sweating depleted the body of sodium and potassium salts. H. G. BARBOUR'S researches in America on the mobilisation of water indicate that blood dilution occurred in response to external heat and thus aided sweating processes, whereas exposure to cold led to a concentration of the circulating medium, the anhydræmia promoting sparing of heat. Prof. EIJKMAN suggested that acclimatisation might be more rapid for the white man if he followed the native in his frugality both in respect to food and drink, in his calm resigned view of life, and in his rule of *festina lente*. However, in such a case the white man would lose some of his characteristics, since, to him, as Prof. EIJKMAN said, "Health is not a mere negation of illness, it also implies something positive. The full use and control of the mental and physical functions, a vigorous constitution, and a considerable amount of bodily well-being—those characterise the healthy man. Much of this the sojourner in the tropics lacks, though he may be exempt from illness. This especially applies to the white man, and the consolation that he is a 'permanent summerman' cannot make up for this deficiency." Such are the difficulties the future will have to overcome if the tropics are to be colonised by the white man as we now know him.

According to Prof. EIJKMAN, who was the first director of the laboratories at Weltevreden in Java, the researches on this subject carried out during the past 30 years in the Dutch East Indies tend to disprove all theories so far enunciated to explain the depressing effect of a tropical climate on the nervous system of the white man. If we ourselves may be permitted to theorise, we would suggest that the monotony of atmospheric conditions in the tropics may stress the nervous system. In those places where there is little difference between atmospheric conditions for day and night and for seasons, the nervous system is continually at work supervising loss of body heat, whereas in climates with seasonal changes and day and night changes, during the cold periods the nervous system has the opposite function—sparing of heat—to control. Change of function may involve rest for one or other part of the nervous mechanisms. Telegraphists' cramp, for instance, is not a true cramp, but an hysterical spasm, and is rectified by change of work. Similarly, the frequent change of atmospheric conditions might prevent the nervous defects due to tropical monotony.

MEDICAL PROTECTION.

No practitioner is safe against becoming involved in very costly litigation arising out of his practice, and no amount of care and skill can render him immune against attack by unscrupulous or wrong-headed persons. Yet at a trivial cost protection can be obtained, and it is to be regretted that there are several thousands of practitioners who have not yet availed themselves of this line of defence. The London and Counties Medical Protection Society, one of the principal defence organisations, held its annual meeting of members recently, when the Council submitted a report of a successful year's work, including a steady increase in membership and financial resources. During the year 1923 the number of applications from members asking for advice and assistance was 662 as compared with 645 for 1922 and 465 for 1921. The results of cases in which litigation occurred were satisfactory, but in the great majority of cases settlement was obtained without litigation. The Council recorded with deep regret the deaths of two of the trustees of the Society's reserve fund—Sir James Reid and Sir John Tweedy to whom the Society was greatly indebted. Sir Anthony Bowlby and Sir Harry Baldwin have undertaken to act in their places. The marked increase over all previous years of cases which passed through the solicitors' hands during the past year indicates that the value of the Society is being more widely appreciated. Three hundred cases have been dealt with in this way, and of these a considerable number were satisfactorily disposed of by the general secretary without further legal proceedings. The year is particularly noticeable for the very small number of litigious cases which have actually gone to trial.

The experiences of the Medical Defence Union and the Medical Protection Society alike show that the questions and appeals arising from the National Health Insurance Regulations are markedly on the increase, and the solicitors to the Society warn panel practitioners thus: "The authorities, it would seem, are demanding from panel practitioners almost academic adherence to their terms of service and medical benefit regulations, and panel practitioners cannot be too careful in their strict adherence to them, as otherwise they may find that through a purely technical breach they are penalised in a substantial

amount." We record elsewhere the results of three official inquiries held into the conduct of panel practitioners where the lapses cannot be categorised in this way. Such cases are very rare, so that they form a foundation for a distrust of panel practice which is quite unjustified. It should be pointed out that, in two of the cases at any rate, the charges were supported by animus, and in certain materials could hardly have been sustained before a jury—a reflection which detracts in no way from the fairness or acumen of the official tribunal in the discharge of very difficult and responsible work. The London and Counties Medical Protection Society urges, in the event of any trouble of this sort, that their members should inform the Society immediately, as the Society has in many cases been embarrassed in its efforts on a member's behalf by the matter coming to its notice when the position had already been complicated by unwise action on the part of the member. A large number of charges of negligence and unskilfulness are dealt with by the Society for its members every year. Many of them are mere excuses for not paying for medical services, or pretexts for attempts to extort money. Some are due to misunderstanding or mistaken ideas, and often have no solid foundation. The following illustrative case, among many, is quoted in the report:—

A member received a solicitor's letter accusing him, or the doctor who assisted him, of having dropped chloroform into the eye of a patient during her confinement. It was stated that the patient's eye had been damaged and blindness caused. After inquiry, the solicitor was informed that there was no reason to suppose that any chloroform had been dropped into the patient's eye and that the eye affection—interstitial keratitis—from which the patient suffered could not have been caused in the way suggested. Nothing more was heard of the complaint.

The treatment of fractured bones gives rise to many claims for damages every year, and members are strongly advised to insist as early as possible upon an X ray examination in all cases of injury where a fracture or dislocation has been, or may have been, sustained. When this is refused, or omitted, for any reason, a member should provide himself with clear evidence—preferably in writing—to prove that he was not responsible for the neglect or omission. The report states that complaints continue to be received concerning the niggardly provision contained in the Coroners Act whereby a medical officer of a voluntary hospital is deprived of the statutory fee for making a post-mortem examination and giving evidence at an inquest on the death of a patient dying in such institution. The Society urges the medical profession to lose no opportunity of protesting against the continuance of this injustice.

The report contains much useful and helpful information and advice on the subjects of libel and slander, medical ethics, National Health Insurance, professional secrecy, medical fees, as well as on difficulties which may arise between partners or between principals and assistants. The numerous cases quoted go to show how many and varied are the trials of the practitioner, and how essential it is that he should adequately safeguard himself.

SMOKE CONTROL IN LANCASHIRE.—At a conference held in Manchester on May 19th, convened by the Ministry of Health and presided over by Mr. J. C. Dawes of that department, the chairman stated to the representatives of 85 authorities in Lancashire and Cheshire that the standards governing the emission of black smoke and methods of observation in this area varied very considerably, and that scarcely two districts had fixed the same permissible period. Even the methods of observation were far from uniform. He suggested that without in any way interfering with local autonomy more uniform methods of administration might usefully be adopted. After an address by Dr. Veitch Clark, medical officer of health, and a prolonged discussion, it was decided to appoint a joint committee to investigate the problem as it affects the area. Each county and municipality was to have two representatives and its medical officer of health or some other officer on the committee, and each rural urban authority one representative and the medical officer of health or other representative on it. Dr. Veitch Clark was appointed convener of the joint committee.

Annotations.

"Ne quid nimis."

QUININE AND MALARIA IN EUROPE.

THE supply of quinine is at present an international health problem, for on it depends the extent to which the epidemics of malaria in the Middle East can be controlled. And it is not a very simple problem. The total annual output of quinine has been put at 600 tons and this has been spoken of as a "world shortage." The present price of sulphate of quinine in England is 2*s.* 3*d.* per ounce wholesale as compared with 1*s.* 4*d.* in 1914, and it would appear that at this price the growers can produce more cinchona bark than the market requires. The enhanced price is determined largely by the increased cost of labour and manufacture, and it becomes relatively higher still owing to the very low buying power of the most malarial countries. Inquiry seems to be called for not only as to the possibility of growing more cinchona, but still more to determine the actual controlling factors in the price of quinine to-day and the possibility of using the drug in some cruder and cheaper form. Now, whilst price plays a dominating part, the practical control of malaria depends on a still more complicated factor—that of the distribution and administration of quinine. In the countries of the Middle East, such as Russia, where 75 per cent. of the population (in some districts 90 per cent.) are suffering from malaria, the only practical means of controlling the epidemic at the present time appears to be by the widespread distribution of quinine carefully controlled. It is possible that as these countries become reorganised the extreme isolation of the majority of the villages (which are often 20–30 miles apart) will enable village committees to deal with their districts locally by drainage and other direct methods of attack on the mosquito vector, but the ignorance of the population and their whole mode of life will, it is to be feared, prevent any such practical steps in this generation. Evacuation of highly malarial districts is impossible owing to the fact that these countries depend on the forests, the haunt of malaria, for wood for houses, heating, and transport. Hence the only line of attack that remains open is quinine administration—first, to reduce the number of human reservoirs, and secondly, to enable the peasants to work on the land. For it cannot be doubted that one of the most potent factors in the spread of malaria in Greece, Turkey, and Russia has been the malnutrition of the population. Malaria and malnutrition, due to absence of crops, constitute a vicious circle, which can only be broken by quinine.

The working out of a system of administration is, however, very difficult. The complete absence of hospitals or even doctors over enormous areas, the lack of communication and transport, the extreme ignorance of the population often with lingual misunderstandings thrown in, the size of the areas concerned, the poverty of the Government, and the liability to corruption constitute an almost insuperable barrier to effective anti-malarial work. Not quite insuperable, in view of the successful experiments now being carried out by the Friends' Relief Unit in the Volga valley, and reported by Dr. Melville Mackenzie a few months ago in our own columns.[1] In this highly malarial district the social conditions are broadly similar to those obtaining in Persia, Greece, or Albania. Some two years ago a complete laboratory was sent out from England with a skilled worker who, in addition to the routine work of blood examinations, has trained large numbers of local personnel in the laboratory diagnosis of malaria and in the administration of a malaria clinic. Boys who have finished their high-school training and who would in ordinary course be going up to a university, receive a three

[1] THE LANCET, 1923, ii., 1225.

months' course of instruction in this laboratory before being sent out into the villages where each opens a malaria clinic. An outfit of stains, microscope, and quinine is supplied to each such centre, with the result that a very effective network of laboratories and clinics is being established throughout the country. Only microscopically positive cases are treated, and a standard individual course of treatment is laid down. Quinine is given over a period of two months, beginning in the first week with 20 g. daily, and among 200,000 cases so treated of which records have been kept there have been no ill-effects. Very few fail to complete their treatment, and the cases of recurrence or, strangely enough, of reinfection in the cases treated are scanty. One doctor only is employed in the organisation, the whole of the remainder of the work being done by an English laboratory worker with Russian assistants trained in the central laboratory.

The success of this piece of work suggests that it will be found wiser to develop a completely separate anti-malaria organisation rather than to try and work through the grossly overcrowded hospitals and overtaxed medical personnel in the few places where these exist.

CHLORINATION OF THE WATER OF SWIMMING BATHS.

ON several occasions recently references have been made in our columns to the danger of the spread of diseases by the water of swimming baths, particularly with respect to infection of the ears and nose. Mr. Walter Edmunds suggested last week, not for the first time, the partial and rather drastic remedy of preventing water from entering the ears during bathing. At a conference of engineers and surveyors in connexion with the congress of the Royal Sanitary Institute at Hull last year, a paper was read on the continuous filtration of the water of swimming baths by Mr. T. Thomas, deputy city engineer of Hull. As the result of the discussion following the reading of the paper a committee of the Sanitary Institute was appointed to investigate the question, and the report of this committee was published in the April issue of the journal of the Institute. The appearance of this report is opportune at the beginning of a new swimming season. The committee received information from 23 towns and also from the manufacturers of plants for the mechanical filtration and aeration of bath water. The conclusions of the committee are broadly as follows: The processes of mechanical aeration and filtration give good results. Without such continuous process the water of swimming baths becomes foul in a day, and excessively foul if retained in the bath for several days. The committee are not satisfied that a mechanically aerated or filtered water is always bacterially safe and suggest that adequate chlorination is desirable in addition. The committee are satisfied that from a financial point of view mechanical filtration and aeration is a sound proposition as compared with the cost of refilling the baths daily or several times a week with clean water. The committee further suggest that where a process of mechanical filtration is adopted the water should nevertheless be changed once every four or six weeks during the summer and at least once in the winter season. Further, the committee think that a strict rule should be adopted that no person be allowed to enter the bath without some preliminary cleansing of the body, and that the shower or other bath needed for the purpose should be in all cases provided. It seems desirable that wide publicity should be given to the report. The management of swimming baths does not always come directly under the purview of the health committee or medical officer of health of the local authority. The Ministry of Health, however, holds inquiries when applications are made for the sanction of loans for expenditure on these filtration plants. There should, therefore, be little difficulty in securing that such plants are efficient. Medical men are impressed with the dangers to health from the impurity of water in swimming baths. We cannot afford to allow the cultivation of an invaluable exercise such as swimming to be interfered with by the impurity of the water. Many education committees, perhaps especially in inland towns, have made praiseworthy efforts to encourage swimming among the school-children. The organisers of physical education appointed during recent years attach great importance to swimming. During the war we learnt a great deal about the purification of water by chlorination. Now it is no exaggeration to say that it is quite possible at a reasonable cost by means of chlorination and filtration to provide a continuously pure water for all the swimming baths in the country. We trust that this matter will be taken up energetically by both the Ministry of Health and the Board of Education.

THE CONDUCT OF INEBRIATE HOMES.

AT a recent meeting of the Medical Council of the Federation of Medical and Allied Services, with representatives of the Church of England Temperance Society, there was a discussion on the Institutional Treatment of Inebriates, when the following resolutions were adopted:—

1. That in the opinion of this Council suitable homes for the treatment of inebriety serve a useful purpose beyond the relief they afford the patients' relatives.
2. Inebriates should only be admitted to institutions for treatment if considered by medical experts suitable cases for such treatment.
3. Boards or committees of management of inebriate institutions should include one or more medical practitioners with expert knowledge of inebriety.
4. Treatment in such institutions should be under the direct supervision and control of medical practitioners experienced in the scientific management of inebriety.
5. Clinical research and psychic treatment are essential to the success of any method adopted in dealing with the conditions.
6. Institutions for the treatment of inebriety should be of sufficient size to justify the employment of experienced resident medical officers.

Though it is not universally held that psychic treatment is essential in all cases of inebriety, and while some inebriates derive more benefit from residence in a small home or altogether away from others suffering from the same complaint, these resolutions as a whole will undoubtedly commend themselves, not only to those who have experience in the treatment of such cases, but to the patients' medical advisers, relatives, and friends. The admission into homes of only suitable cases will eliminate many undesirables, such as mental defectives and the vicious drunkard, who has no intention to abstain from alcohol. The presence in a home of the latter class prejudices the chance of recovery of others who take a serious view of their failing and are earnest in their desire for cure. It is to be hoped that the Church of England Temperance Society will be again able to establish a home for the poorer class of male inebriates for whose treatment there is at present practically no provision, and to receive them either under the Inebriates Act, or without signature before a magistrate, for shorter periods than was at one time considered essential. The Federation of Medical and Allied Services have agreed to provide expert medical opinion to assist the future management of the Society's Inebriate Homes, and this assistance will be of great value, not only in directing treatment, but in helping to determine the length of detention advisable.

EXCITING CAUSES OF EPILEPTIC SEIZURES.

APART altogether from the essential underlying cause of epilepsy, many factors are known to influence the occurrence of attacks in those who suffer from the disease. Little new has been discovered in regard to these factors or their mode of action, but P. Hartenberg [1] has recently cleared the ground with a useful comprehensive review of what is known. The conditions which favour the occurrence of attacks he divides into two groups: (1) physiological

[1] Hartenberg: La Presse Médicale, April 30th, 1924, p. 379.

—influences to which the healthy individual is subject—and (2) pathological. Of the physiological factors the most important is sleep, and, in particular, the periods near the beginning and end of the night's rest. But for some patients it is the half hour which follows the awakening that is the most dangerous time; in these cases the attacks occur even with short sleep during the day, and are independent of the patient's posture during and after the period of sleep. Influences related to the organs of sex come next in the physiological group; of these the catamenia are the most powerful; puberty, too, has an important effect, and sometimes attacks may begin or may recur at the menopause; pregnancy may initiate the attacks, but more often it brings about a remission of them; coitus and masturbation have been considered provocative of fits by some writers. The intake and digestion of food favour attacks in certain patients. Hartenberg is inclined to see in distension of the stomach the essential element in this sub-group; he has not been able to find any evidence that particular proteins are to blame. Changes in the blood-supply of the brain form the fourth class of exciting causes; they may be brought about by stooping, passing into a warm atmosphere, emotion (especially anger), or mental concentration. The pathological exciting causes are practically all concerned with the functions of the alimentary tract—dyspepsia, dilatation of the stomach, enteritis, constipation—the common factor probably being intestinal putrefaction; certain foodstuffs owe their harmfulness to the putrefaction to which they give rise. Hartenberg considers that periods of slight diarrhœa are a very significant sign in epileptics. Endocrine disorders are mentioned as a second pathological sub-group, the evidence that they favour attacks resting on the beneficial effect of certain glandular extracts in a few cases. Treatment of such favouring factors, though it will not cure epilepsy, is of very great influence in ameliorating it.

UROTROPINE IN THE PREVENTION OF POST-OPERATIVE RETENTION OF URINE.

IN 1921 Vogt, of the Gynæcological Hospital in Tübingen, published in *Zentralblatt für Gynäkologie* an account of his observations on the action of urotropine given by intravenous injection. His original object was to obtain some relief from the discomforts of lumbar anæsthesia. He noticed incidentally that patients thus treated with urotropine experienced no difficulty in micturition after operations. Accordingly he gave from 7 to 10 c.cm. of a 40 per cent. solution of urotropine to all his patients suffering from retention of urine after gynæcological operations, and he found that this procedure was uniformly successful, urine being passed by the patients 8 to 12 hours later without the discomforts and dangers of the catheter. In the summer of 1923 Dr. Sten von Stapelmohr, speaking at a meeting of the Association of Scandinavian Surgeons, confirmed these observations. At his hospital in Stockholm he had given urotropine by intravenous injection in about 50 cases, and the many successes achieved were not marred by complications such as hæmaturia. He had also given urotropine by the mouth in large doses, but the results had not been so good, and the action of the urotropine on the evacuation of the bladder had not been so uniform. Another report comes from the University Gynæcological Hospital in Leipzig. The author of this report, Dr. C. Pasch,[1] writes with an experience of 90 cases, 75 of which were complicated by post-operative retention of urine and 15 by post-operative cystitis. As a rule, it was not necessary to inject more than 3 c.cm. of a 40 per cent. solution of urotropine, but it proved advisable to inject at least 5 c.cm. when gynæcological operations had encroached considerably on the bladder. Systematic examinations of the urine were carried out, but in no case did they reveal ill-effects from this treatment. But in 4 per cent. it gave rise to troublesome tenesmus, and in another 4 per cent. it proved ineffective, the services of the catheter being required. As a rule, spontaneous micturition occurred from two to ten hours after an injection. Control observations with the catheter showed that in 72 per cent. of the cases treated the spontaneous evacuation of the bladder was complete. On the other hand, more than half of the patients who were not treated with urotropine did not empty their bladders completely, even when there was no absolute retention, the residual urine in these cases measuring from 10 to 150 c.cm. Dr. Pasch confirms the observation of von Stapelmohr that giving even large doses of urotropine by the mouth is of comparatively little value. A few years ago the disinfectant action of urotropine on the urinary tract was supposed to depend on the liberation of formaldehyde, but the recent investigations of Buzello and others suggest that this explanation may be incorrect.

[1] Zentralblatt für Gyn., 1924, xlviii., 706.

THE LESSONS OF ANIMAL DISEASES.

PIGLINGS of a few weeks old are very apt to suffer from a disease which has been ascribed in America to cotton-seed meal poisoning. It is characterised mainly by severe anæmia, dyspnœa, dropsical effusions, and liver changes. In the current number of the *Journal of Pathology and Bacteriology* (vol. xxvii., p. 201) and in the *Biochemical Journal* (vol. xvii., p. 204; vol. xviii., pp. 265, 273) Dr. J. P. McGowan and Mr. A. Crichton give a most interesting account of their observations on the condition at the Rowett Research Institute, Aberdeen. As regards causation, they hold that the condition is essentially due to iron deficiency, accentuated in some instances by incomplete foods, such as cotton-seed meal; they show that it may be prevented and cured by feeding iron oxide to the sow. The blood is very anæmic, the percentage of hæmoglobin falling to 20 or 30 per cent. from the 80 per cent. on the human scale which is about normal for young pigs; histologically there are abundant signs of marrow activity. The heart is much dilated and enlarged; there is frequently hydropericardium, though considerable ascites is more constantly found; in animals which more or less recover these effusions into the serous sacs are followed by adhesions which mat the viscera together. Most remarkable are the changes in the liver, where there is necrosis of most of the central parts of the lobules with severe fatty change, which is distributed patchily through the organ and not uniformly. The administration of iron will cure the liver with or without the induction of a perilobular cirrhosis. The other organs show nothing particular. There is evidently much work still to be done in elucidating the pathology of the disease. In particular, the relation of the different lesions to one another is at present quite obscure. But what has been done certainly seems of substantial importance if only for the discovery of a lobular degeneration of the liver with a patchy distribution—a condition we believe to be unknown in human pathology, and forming a connecting link between the necrosis of whole pieces of liver (as in acute atrophy) and the necrosis of parts of every lobule throughout the liver (as in chloroform poisoning). We hope the authors or others will pursue the matter further, and, not content with being able to cure the disease, will work out its pathology in detail.

The classical methods of morbid anatomy and experimental pathology are often neglected, we regret to think, through investigators being satisfied with obtaining an effective practical control through the discovery of the ætiology; there is a good deal still unknown about the pathology of malaria, and an immense amount remains to be discovered about the deficiency diseases. And if pathology is to progress in its understanding of the anatomy and physiology of disease it must draw its data from the widest sources. Like any other science standing on its own legs, it is concerned to discover the general rules

which govern the reactions of five organisms to disease. Substantial progress has been made fr an almost exclusively human standpoint; it is pl that this is reaching its limits of fruitfulness. A it is encouraging to see that the necessity for a wider outlook is being realised in various directions. We have a movement for the more accurate study of animal diseases of economic importance; the Royal Society of Medicine has established an appropriate section. Dr. Herbert Fox has published a book about his experience of disease in the wild animals at the gardens in Philadelphia. Prof. Theobald Smith [1] lately addressed an audience in Edinburgh on the import of comparative pathology with the breadth of view which one would expect from his achievements in philosophical bacteriology. Distemper is being taken seriously in hand, some say because of the probable importance of the results when they are applied to analogous human diseases, some say because we are a decent people and love our dogs as well as ourselves. What excuse is given for the pursuit of this particular piece of information does not perhaps matter very much; if there were no analogous diseases in man, and if we took a Frenchman's view of the dog, distemper would still be worth finding out about, and we hope the money will be forthcoming to finance a worthy inquiry. Perhaps, too, the proceeds of the new aquaria in Regent's Park may enable the Zoological Society to make a more extensive provision for the application of the modern methods of a medical school and hospital to the animals under their care. Comparative pathology has waited a long time; it seems likely that by one route and another more rapid progress will soon be made along the path indicated by Hunter, James Paget, and William McEwen.

GENESIS OF MINERS' NYSTAGMUS.

DR. F. ROBSON'S theory of the genesis of coal-miners' nystagmus—that the main factor in its causation is not defective light, but some gaseous emanation from the coal itself, probably carbon monoxide—was set out in our columns after he had read his paper to the South Wales Institute of Engineers a year ago.[2] The paper is now republished in book form,[3] together with the discussion to which it gave rise, generally, it must be admitted, not very favourable to the author's views, though they are by no means without support, both medical and lay. The subject is such an important one from the economic point of view that it is a matter of regret that medical opinion respecting it is even now by no means unanimous. The data on which theories have been formed are mainly statistical, depending on the number of cases of nystagmus in miners which obtain compensation under different conditions and in different areas. These statistics, as has been pointed out by several of those who have taken part in discussions on the subject, are liable to several fallacies. One is the definition of the disease. In ordinary medical parlance nystagmus means an involuntary oscillation of the eye-balls. It is found that a considerable percentage of miners, after a certain number of years' work at the coal face, are subject to this malady. Only a small proportion of these, however, complain of any unpleasant or disabling symptoms. When the question of compensation comes in, the number of those claiming it is said to depend largely on the amount of compensation obtainable and its relation to wages, and as neither of these factors have been by any means constant, we see at once that there must be a material source of fallacy in figures derived from compensation statistics alone. A further source of fallacy is that along with actual oscillation of the eye-balls a number of neurasthenic symptoms frequently occur. By some these are looked upon as an essential part of the disease, by others as a separate entity. In the schedule of 1913 cases of so-called miners' nystagmus were admitted for compensation even in the absence of any oscillation of the eye-balls. The subject is further complicated by the fact that the development of miners' nystagmus always takes many years even under the most unfavourable conditions, and by the further fact that once a miner has developed it he is very apt to suffer a relapse on returning to work after an apparent cure. Any statistical argument should take all these factors into account, besides the factor of cramped posture, which is still believed to be important by some, the factor of noxious gases which Dr. Robson is chiefly concerned with, and the factor of deficient illumination which his book cannot by any means be considered to have effectually disposed of.

[1] Edinburgh Medical Journal, 1924, vol. xxxi., p. 221.

[2] THE LANCET, 1923, i., 961.

[3] Coal-Miners' Nystagmus. By Frederick Robson, M.D. Reprinted from the Proceedings of the South Wales Institute of Engineers. Published by the Institute, Park-place, Cardiff. 1924. Vol. xxxix., Nos. 2 and 4. Pp. 556. 10*s*. 6*d*.

THE DEMONSTRATION OF S. PALLIDA IN TISSUES.

A SIMPLE and remarkably expeditious method of demonstrating the *Spirochæta pallida* in tissues has been devised by Dr. Walther Kranz,[1] of the skin department of the University of Cologne. The method is a modification of the well-known procedure of Levaditi, over which, however, it has important advantages; these depend upon the fact that impregnation with the silver nitrate is carried out in the sections and not in the uncut tissue. This renders the impregnation much more certain, and also allows of a reduction in the time allotted to this step. The method is applicable to either frozen or paraffin sections; the material must, of course, be formalin fixed. In working with frozen sections Dr. Kranz first washes in distilled water and then carries a number of the sections up to 15 into a 0·1 per cent. solution of silver nitrate in distilled water, contained in test-tubes; in this they are left in the paraffin oven for from 4 to 24 hours. They are then washed in distilled water and carried over into a solution consisting of pyrogallol, 0·2 g.; aq. dist., 15 c.cm.; and mucilage of gum-arabic, 5 c.cm. The reduction of the silver nitrate takes from 30 to 60 minutes, and should be controlled under the microscope; when it is complete the sections are washed in running water to free them from the gum, carried through alcohol and xylol, and mounted in the usual way. In dealing with paraffin material the sections are first fixed to the slide and freed from paraffin, and then taken through the solutions as described above. No counterstain is necessary, and the picture is that of a Levaditi preparation. As is evident from the above, the whole procedure can readily be carried through within the period of an ordinary working day, and should prove of great use to workers on syphilitic material.

CUTIS VERTICIS GYRATA.

UNDER this denomination Unna described a condition characterised by irregularity of the surface of the hairy scalp over the sinciput and contiguous parts, with the formation of swellings separated one from the other by sulci which resemble the appearance of the cerebral convolutions. For the most part these swellings are placed in lines radiating from the vertex, somewhat undulating, and of a breadth varying from 2–3 cm. and from 10–15 cm. in length. Their surface is convex in the direction of their width. More rarely the lines are arranged in parallel fashion with regard to the sinciput. The swellings and the sulci are much more marked near the vertex. Andry described a similar condition under the name "Pachyderme vorticillée du cuir chevelu," and Calle under the name "Cuir chevelu encephaloide." It was Jadassohn who first drew attention to this condition at the Ninth Congress of Dermatology held at Berne in 1906, and the following year Unna published three cases in which

[1] Münch. med. Woch., May 9th, 1924, p. 608.

he attributed the condition to a disproportion between the dimensions of the skull and those of the skin which had become exuberant owing to a kind of hyperplasia of its superficial parts. Dr. Benedetto Sparacio, of the Dermatological Clinic in the University of Rome, has lately published another case of this rare and interesting condition.[1]

The patient was a woman, aged 53, who, early in November, 1922, began to suffer from excoriations on the tongue, pharynx and mucous membrane of the cheeks, lips and nose. About two months later bullæ appeared on the shoulders and other parts of the skin. In April, 1923, she was admitted to the clinic and noticed to be suffering from pemphigus, and as she complained of itching of the scalp the hair was cut and numerous bullæ were found there. About five months later when the hair was cut again the hairy scalp was seen to have developed the condition known as "cutis verticis gyrata." The changes which occupied all the hairy scalp except those parts corresponding to the lower third of the temporal bones, the middle third of the occipital, and lower part of the frontal were much more marked over the vertex. Over these areas there were swellings separated by sulci of a depth of 3–4 mm. Not all the sulci were of the same depth or length, and in some parts they were hardly noticeable. One small sulcus in the right temporo-parietal region, which measured 3 cm. in depth, was observed during the space of a month to have become much deeper and longer. Over the whole area about 31 sulci were counted. The development of the hairs were normal; those which grew on the edges of the sulci were intertwined, giving the appearance of a brush. The entire scalp was freely movable over the skull. A histological examination was made possible owing to the death of the patient, and the sections showed that in the parts corresponding to the sulci every trace of these had disappeared so that the sections presented a plain surface, while, on the other hand, the lower epicranial superficies appeared undulating and indented, corresponding to the *retinacula cutis*. The only histological change noticed was a slight inflammatory condition represented by a small-celled infiltration of the papillary bodies and the superficial layer of the derma. There were no changes in the middle and deep layers, nor in the vessels, sweat glands, or sebaceous follicles.

In view of these histological observations, the presence of the sulci noticed during life cannot be attributed to cicatricial retraction, nor to hyperplasia of the connective tissue, nor to a condition of elephantiasis of the derma causing the brain-like swellings, explanations given by such observers as Verres, Vignolo-Lutati, and Pasini; any nævoid change must also be excluded. When the disappearance of the swellings and sulci post mortem, together with the normal structure of the scalp, is taken into consideration with the appearance of the undulations observed on the deeper layer in relation to the epicranial aponeurosis, it is difficult to avoid the conclusion that in this case the cutis verticis gyrata was caused by a temporary condition of the skin referable to the epicranial aponeurosis and retinacula, analogous in certain respects to that which takes place in the frontal region when the brow is wrinkled by contraction of the frontal muscles. The brain-like swellings may reasonably be attributed also to a condition of œdematous turgescence which disappeared post mortem contained between rigid and non-infiltrable zones such as those corresponding to the retinacula; the histological examination does not negative such a supposition. The pathology of cutis verticis gyrata may be summed up as a special condition consequent on an inflammatory process, perhaps more dynamic than static, determined by the relations between the superficial fascia, epicranial aponeurosis, and retinacula cutis.

THE summer session of the General Medical Council opened on Tuesday, May 27th, Sir Donald MacAlister presiding (see p. 1132).

THE house and library of the Royal Society of Medicine will be closed from Saturday, June 7th, to Monday, June 9th, both days inclusive.

[1] La Riforma Medica, xl., April 14th, 1924.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

LXXIII.—TREATMENT OF FRACTURES OF THE ANKLE.

FRACTURES in the region of the ankle include Pott's fracture and its converse, fracture of one or of both malleoli; and fracture of the posterior margin of the articular surface of the tibia, in association with posterior dislocation of the ankle. Variations of the more typical fractures are constantly met with.

Relation of these Fractures to the Function of the Foot.

Fractures of the ankle are important mainly in so far as they affect the chief function of the foot and ankle, that of bearing the weight of the body and of propelling it. Recovery of this function is the chief object of treatment, though for cosmetic reasons also correction of displacement is desirable. If the posterior displacement of the foot is not corrected, it means that the patient will be unable to dorsiflex the foot and so will lose one of the most important movements necessary in walking; indeed, this movement is essential if the patient is not to walk with a limp. If the displacement of the foot laterally—in the case of Pott's fracture—is not corrected, a condition of painful traumatic flat-foot results. The arches of the foot are not rigid but plastic structures, and their support is dependent upon a balanced action of certain muscle-groups. This balance is disturbed by any alteration in the normal line of weight-bearing. Angular deformity, which alters the horizontal axis of the ankle-joint, is associated with the worst kind of functional disability. It is to be noted, therefore, that in all these fractures the position of the foot in relation to the leg must be corrected in both the sagittal and coronal planes.

Details of Management.

Antero-posterior and lateral radiograms of the foot and ankle should be taken. If displacement is present, it should be reduced under a general anæsthetic. The temptation in many of these cases is to put the limb up in such an apparatus as a box-splint and to expect the splint, aided by massage, to do the work of reduction, thus avoiding the necessity of an anæsthetic. Such a policy cannot be too strongly condemned, as it is just here that a little want of resolution is paid for in a poor functional result. Under the anæsthetic it is surprising how easy it is to secure complete and accurate reduction. Special splints have been devised from time to time for controlling a tendency either to backward or lateral displacement of the foot, but for efficiency a plaster-of-Paris casing is much to be preferred. It offers many advantages. It controls displacement in both planes and once applied there is no need for constant attention and readjustment. If applied with care, there is no real fear of interference with the circulation or of pressure sores. It is such fears, which have really very little to support them, that have prevented the more general employment of the very best means at our disposal for securing fixation in many fractures.

Reduction and Application of Plaster.

In a Pott's fracture, with displacement, the surgeon faces the sole of the foot. In a fracture of the left leg, he grasps the leg below its middle with the left hand. With the right hand he grasps the foot, and corrects the backward displacement by pressing downwards with the left hand and lifting the foot forwards with the right. The lateral displacement of the foot is then corrected by strongly adducting it; in other words, the foot is flexed towards the medial malleolus (Fig. 1). At the same time it is dorsiflexed to a position of 5° or more beyond the right angle. An assistant then powders the skin and envelops the limb from toes to mid-thigh in woollen bandages. A plaster-of-Paris splint is then made

for fitment along the posterior aspect of the limb. A plaster bandage, six inches or so in breadth, is placed in a bucket of warm water. The excess of water is gently expressed, and the bandage unrolled backwards and forwards upon itself in re-duplications about two feet long. Each fold is rubbed rapidly into the one preceding, by the flat of the hand, until the bandage is exhausted. In this way a soft pliable splint is available. It is then carefully applied and moulded to the posterior aspect of the leg and sole by the assistant. The surgeon maintains the reduction while this is being done, and finally insinuates his fingers and grasp round the soft splint also. In point of fact this is not difficult, and should any displacement occur it may be corrected at once on the splint. Both leg and splint now being held securely by the surgeon, the assistant applies a plaster-of-Paris bandage round the leg and splint from the toes to the mid-thigh (Fig. 1). This bandage is applied evenly and without such undue pressure as would tend to constrict the limb in any way. A third and fourth bandage are then employed to cover the same ground as the first, and so the plaster-casing is completed. Just as the plaster is setting, the surgeon may make a final adjustment to secure dorsiflexion of the foot and then moulds the plaster

FIG. 1.

Fixing gutter-splint to limb by application of plaster bandage. The surgeon (on whose arms the arrows are placed) maintains the reduction while the assistant applies the bandage. A second helper supports the limb in the manner indicated.

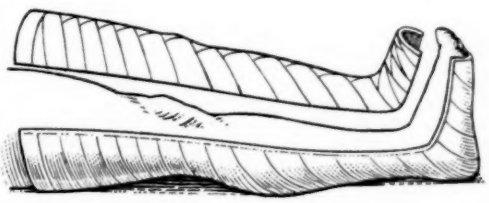
in the sole to support the arches of the foot. When set, the plaster is trimmed by a strong knife to expose all the toes. In this way a watch may be kept upon the integrity of the circulation. The majority of fractures of the ankle have not been associated, in my experience, with gross swelling such as text-books often describe. It is a good plan, however, to bi-valve the cast at once into two equal portions by cutting it longitudinally down both sides. Next day radiograms are taken to see that reduction is complete.

After-care.

On the day after reduction and fixation the top half of the casing is lifted off and massage begun as the limb lies in the posterior shell (Fig. 2). The full therapeutic effect of massage is secured in this way, and it is not necessary to lift the limb out of the casing until the end of ten days or a fortnight. Massage may be given twice daily, the two portions of the cast being retained in position by a roller bandage. Active movement of the toes is encouraged at once, and when the time comes for lifting the limb out of the casing daily for massage, active and passive movements of the ankle are begun. Opportunity is taken meanwhile to alter the heel of the boot by prolonging its inner half forward for ½ inch and to introduce a wedge of leather, ¼ inch thick, to raise the front inner corner of the heel. Such an alteration helps to support the arch of the foot when weight-bearing is begun. In eight weeks the patient may put on his boot and start partial weight-bearing with the aid of crutches. Indication that full weight-bearing is possible is to be obtained by testing the site of fracture for local tenderness on pressure. If tenderness is present it means that the callus has not completely consolidated and further protection is necessary. In these cases such protection is afforded by the employment of a short iron along the outer side of the leg, let into a slot in the heel at one end and retained around the leg below the knee by a broad leather cuff. It is used in association with an inside T-strap of leather round the ankle.

An alternative plan is to support the ankle and foot by a "stirrup-strapping." Four strips of adhesive strapping, 2 feet long and 1 inch broad, are cut.

FIG. 2.



Bisected case: showing plaster-of-Paris splint divided into anterior and posterior halves for exposure of the limb. Note the dorsiflexed and inverted position of the foot.

The patient is instructed to hold the foot dorsiflexed and inverted, while the surgeon applies the first strip from the middle of the outer aspect of the leg downwards over the lateral malleolus across the sole and up the inner surface of the leg. The other strips are then applied in the same way in an imbricated fashion and bound down to the front of the leg and ankle by short cross-pieces of adhesive plaster. A narrow domette bandage is then put on neatly over all, and in this way an excellent ambulatory splint is obtained.

For other fractures in the region of the ankle the same methods are employed.

Fundamental Rules.

The principles followed may be formulated in the following fundamental rules:—

(1) Complete anatomic reposition should be the goal in all cases.

(2) When displacement is present, the plan of treatment should be reduction under an anæsthetic followed by immobilisation in a plaster-of-Paris casing.

(3) When rigid dressings are applied care should be taken to fix the foot and ankle in the position of optimum function—that is, with the foot at or beyond right-angle dorsiflexion, the foot inverted and the arches supported.

(4) The fundamental supporting structures of the foot being largely muscular, their tone and strength must be preserved by beginning massage and active movements at as early a date as possible.

(5) When weight-bearing is first permitted, the foot being weak, support should be given by the use of a heel whose inner border is prolonged forwards and elevated.

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BRISTOL ROYAL INFIRMARY. — At the annual meeting of the governors of the infirmary on May 21st, Lieut.-Colonel P. G. Robinson, President, in the chair, the annual report showed that the year 1923 had been one of progress. An up-to-date department for dental patients was opened during that year and the number of dental patients had been doubled. In the wards and out-door departments of the institution 61,500 patients had been treated, a number which was equal to one-sixth of the population of Bristol. A large amount of work had also been done in the maternity department and in the children's wards. Reference was made to the bequests of the late Mr. H. H. Wills, who, in addition to a sum of £11,250, had given the infirmary 21,000 ordinary shares in the Imperial Tobacco Company (of Great Britain and Ireland), Ltd. The total value of Mr. Wills's bequests amounted to date to £83,700. Unfortunately, there was a deficit of £4000 on the year's working of the infirmary, but this, it is hoped, will not interfere with the opening of new wards as soon as increased nursing accommodation is provided.

Special Articles.

THE PEOPLE'S LEAGUE OF HEALTH.

FIRST INTERNATIONAL CONGRESS AT WEMBLEY.

THIS congress was opened by Viscount Burnham, the President, at Wembley on May 21st. The President said that the League had done much pioneer work in educating the public as to health matters. Much of the success of Public Health Acts depended upon the support of public opinion. When in Jamaica last year he saw how much the officers of public health were hampered and obstructed by the apathy and ignorance of the multitude. Great things had, however, already been done in combating tropical diseases.

The Housing Section.

Mr. Neville Chamberlain, M.P., who presided over the Housing Section, also pointed out that progress in public health depended upon public opinion. All Governments in this country followed, but did not lead. Housing was a problem of old countries and especially of the industrial towns of old countries. It was a legacy from the population of 100 years ago who built houses according to the standard of that time. It was a pity no one had yet invented paper houses. Houses were at present built to last 80 years, and would be out of date long before that time. It was not only rehousing that was necessary, but redistribution of the population. The housing question therefore was bound up intimately with the transport system, and housing reformers needed to exercise much forethought.

Mr. James Stewart (Parliamentary Under-Secretary for Health in Scotland), referring to the paper houses described in Bellamy's "Looking Backward," said that 80 years was much too long a life for a house. His experience of wooden houses in America was that they were quite warm and comfortable. He agreed with Mr. Chamberlain that the housing problem was not entirely the result of the capitalist system, but that it was rather due to the general ignorance of our forefathers. For instance, the homes of the aristocracy which had been converted into Government offices were wanting in light and air. Money spent in housing would bring a return, but rather resembled capital invested in commercial enterprise, which did not earn dividends at once. As a native of Glasgow he was appalled by the percentages of the population living in homes of one and two rooms respectively. He believed that much of the tuberculosis in Glasgow was due to housing conditions. £220,000 a year were spent in efforts to cure tuberculosis—mostly futile. Better housing would not only mean less tuberculosis, but less expenditure on widows and orphans, on the sick poor, on voluntary hospitals, and on the results of crime and intemperance. Housing had become the sport of politicians. There should be a whole-hearted effort of all parties to find a remedy. He agreed with Mr. Chamberlain that redistribution was necessary. He hoped for smaller towns and cities. The intelligent use of electric power would help in this direction. If we did not solve the housing problem we were doomed as a nation.

Dr. John Robertson (M.O.H., Birmingham) said that many English towns had the evils of back-to-back houses to put against the tenements of Glasgow. The back-to-back houses were mostly three-roomed and *did* allow the children to get out, and for that reason were infinitely preferable to the Glasgow flat system. He was hopeful about town-planning, but urged that if town-planning were to be successful provision must be made for the recreation of the population at every age. If the number of houses per acre were limited there would be open-air space for the baby and the toddler in the garden under the eye of the mother. Small school-children needed playgrounds near their homes. For children from 8 to 10 years special accommodation was needed in the parks; from 11 to 12 playing fields; from 14 onwards larger playing fields. After 25 recreation could usually be paid for. Allotments were essential, and at present were too far from the homes and were held on too precarious a tenure. No town in the country had yet made adequate provision for the recreation of its population. He estimated that eight acres were needed per thousand of the population: five for games, two for allotments, and one for parks for the elders. This open space might in the future be provided on each side of the main arterial roads, which the noise of the traffic would render unsuitable for housing sites.

Dr. F. E. Wynne (M.O.H., Sheffield) said that housing had become such a burden on rates and taxes that local authorities had been obliged to select good tenants. This was wrong. The evacuation of slums should be the first charge on housing. Sickness and disability caused by bad housing cost more than the subsidies to housing. There was no difficulty in showing that the bad conditions in the slums caused high death- and disease-rates. An area in Sheffield which was condemned by Dr. Robertson had not been dealt with yet. He thought this was not a time for rigid adherence to ideals and that every housing scheme should include some very cheap temporary houses. It was true that the tenants from the old slums might make these into new slums, but he thought this could be prevented by a combination of firm administration and Octavia Hill methods.

Dr. Leonard Hill pleaded for greater simplicity in houses. As long as one got plenty of open air and sunshine the house was a matter of little importance. The new houses were already out of date according to modern hygiene. He suggested that the local authority should secure areas and allow persons who wanted houses to erect their own free of any restriction. The local authority would only need to provide pure water and arrange for the careful disposal of the sewage and excreta.

Food Section.

Sir W. Arbuthnot Lane, in opening the proceedings of the Food Section, said that he would like to see the food experts present at the congress arrange a dietary which would give rise to three or four motions in the 24 hours. The baby, during its napkin stage, was the only member of our community sensibly treated. After babyhood a system of regulated constipation was taught.

Prof. E. Mellanby pointed out that practically every child of 5 had decayed teeth and that rickets was a very common disease. Cereals were the chief cause and oatmeal was the worst cereal. We must eat cereals, but fortunately we were able to antagonise the bad effects of the cereals by an adequate supply of foods containing the fat-soluble A-vitamin. Cod-liver oil was the best source of this vitamin and milk had a better effect than butter. Sunshine in virtue of the ultra-violet rays would also antagonise the bad effects of cereals, but was not efficacious if the diet were very bad. A small daily dose of cod-liver oil was beneficial during the winter when sunshine was scarce.

Prof. R. H. A. Plimmer dealt with the various kinds of protein. He explained why one protein was more valuable than another in promoting growth and nutrition. The protein of cereals alone was not sufficient, but the protein of cereals and green-leaved vegetables combined might suffice for a strict vegetarian.

Prof. J. C. Drummond dealt with the great value of milk as a food. He instanced the bad effects of the scarcity of milk on the children of Central Europe, and the wonderfully good results obtained by providing ill-nourished school-children in America with an extra pint of milk per day. The experiments in America were being continued, but up to now it appeared that the improvement produced by the milk was out of all proportion to its caloric value and was probably

attributable to the vitamin-content of the milk. Research was now in progress as to the effects of pasteurisation and desiccation on milk, and up to the present it would appear that the food value of these forms of milk, if properly prepared, was much the same as that of untreated milk.

As the result of the discussion which followed the reading of the papers, a resolution was adopted requesting the Council of the People's League of Health to appoint a special committee to draw up for popular use a pamphlet of instructions as to the dietary necessary to promote good nutrition and health.

Air, Light, and Water.

The second day's proceedings of the congress were of equal interest. In the morning the members listened to an exposition of the latest views as to the value of light and air by well-known authorities under the presidency of Sir Henry Gauvain. Dr. Fortescue Fox put in a plea for the systematic study and organisation of British spa treatment, and instanced the value of such treatment for chronic rheumatism and breakdown in middle life. The chief event of this section was Dr. A. Rollier's fascinating and suggestive paper on the rôle of the sun. The paper described the methods adopted at Leysin, their preventive application to debilitated children in the "Sun" School at Cergnat, and the possibilities of applying these principles in everyday life; and was illustrated by lantern slides showing the wonderful results obtained in the treatment of tuberculous cripples.

Some Overseas and Other Diseases.

Sir Leonard Rogers dealt with leprosy. There were probably more than 2,000,000 lepers in the world. In spite of the success of modern treatment by chaulmoogra oil, he estimated that only one-tenth of the lepers in British Dominions were receiving treatment. Segregation had not been applied scientifically and perhaps 75 per cent. of the lepers at present segregated were non-infectious.

Dr. George Low, in discussing filariasis, showed that the mosquito (*Culex fatigans*), which acted as the intermediate host of the causal worm, was more easily extirpated than the malaria mosquito. *Culex fatigans*, like stegomyia, the vector of yellow fever, had domestic habits and was found in water-barrels, &c., near dwellings. In the West Indies both these mosquitoes were tackled simultaneously. In many British colonies anti-mosquito measures were still not conducted with sufficient energy.

Dr. P. H. Manson-Bahr described the modern usage of antimony preparations, arsenical derivatives, bismuth, quinine, Bayer "205," and emetine in the treatment of kala-azar, bilharziasis, trypanosomiasis, yaws, malaria, dysentery, liver abscess, and other tropical scourges.

Dr. Andrew Balfour wound up with a paper on vermin and their relation to disease, using the term "vermin" in a wide sense. It may be confidently said that, at the close of the session, none of the audience disagreed with Dr. Balfour's pronouncement that our efforts to destroy vermin are too half-hearted, and that our interest in the promotion of research is altogether inadequate when compared with the greatness of our responsibility.

Mental Hygiene.

At the morning session of May 23rd the Conference settled down to discuss the hygiene of the mind, under the presidency of Sir Courtauld Thomson.

Dr. Farquhar Buzzard insisted that the term "nerves" must go. It was a term invented for our deception because we did not like talking about our minds. Medical opinion was unanimous that hope for future improvement lay in the prevention and early detection of disorders of function. Why should a man confess without a blush to having a disorder of the liver, perhaps the result of over-eating or over-drinking, and his brother be afraid to admit a disorder of the mind, caused by overwork or anxiety. If the term "nerves" were abolished and the prejudice about the use of the word "mental" disappeared, they would have taken the biggest step forward in the promotion of mental hygiene.

Sir Frederick Mott strongly advocated the establishment throughout the country of more hospitals like the Maudsley, and pointed out that the study and treatment of early cases would be much more useful if the law could be so altered that patients could be detained for more than 24 hours, even against their wish.

Dr. H. Crichton Miller said there was no hard-and-fast differentiation between sane and insane. Some asylum cases are curable, many uncertified cases of mental breakdown can be saved, and a very great proportion of both might be prevented. Much research is still called for, but much of our present knowledge is not applied, partly because public opinion is not educated and partly because the necessary funds are not available. We need greatly increased personnel in our asylums, more research into individual cases, and more chairs in our mental schools which will attract the best brains in the alienist world. Perhaps more important still we need conditions for the treatment of minor mental disorders which will secure the coördination of specialised medical skill for individual cases. Such a vision needed great financial support.

Dr. R. G. Rows said the recognition of the fact that the delinquent was made, not born, would put an end to the feeling of helplessness and hopelessness and justify the hope that change of environment and education of parents and child would do much to prevent delinquency.

On the following day Prof. George M. Robertson contributed an interesting paper on the Hospitalisation of the Asylum, and confirmed the views of other speakers as to the need for an increased medical staff in asylums, more research, and more careful study of individual cases. He advocated several changes calculated to make asylums more like hospitals, such as the admission of all voluntary cases, whether they can pay or not, the temporary notification of cases by two medical men in lieu of certification, and the more frequent revision of legally detained cases.

Industrial Hygiene.

At the afternoon session of May 23rd the hygiene of industry was considered. Sir Thomas Oliver presided, and the speakers included Prof. E. L. Collis, Dr. C. S. Myers, Director of the National Institute of Industrial Psychology, and Dr. F. Shufflebotham.

Dr. Myers pointed out that industrial psychology is concerned in alleviating the strain arising from defective arrangements of hours of work and rest, or from rare or too frequent changes of work; from waste of energy due to unsystematic training, unnecessary and unrhythmical movements, needless standing and stooping, &c.; from inefficient illumination, excessive vibration, humidity and temperature, &c.; and from unfitness for the occupation adopted. The hygienic value of industrial psychology was clearly reflected in the diminished sickness records, the increased output, and the greater happiness of the workers, obtained by its application.

In his paper on lead poisoning among pottery workers Dr. Shufflebotham pointed out that acute cases of lead poisoning had been wiped out by the Home Office regulations, but that chronic cases still occurred and were very unfairly treated under the Workmen's Compensation Act. The monthly examinations by the factory surgeons had acted beneficially to leadworkers, but the power to suspend workers who might have been engaged in this occupation for 30 or 40 years, presumably because they were suffering from lead poisoning, was a manifest injustice.

Dr. Ralph C. Matson, Director of the National Tuberculosis Association, U.S.A., described a typical American intensive health experiment, by means of which the population of Framingham, Massachusetts, numbering 17,000, had been provided, after a study of the conditions, with an up-to-date organisation, where practically none existed before, to the great benefit of the residents and industrial workers, and

with a lowering of 16 per cent. in the general death-rate and about 50 per cent. in the mortality from tuberculosis and among infants.

Legislation on Health Matters.

Lines of progress for the future and desirable legislative changes were the theme for the last session on Saturday, May 24th, Miss Margaret Bondfield, M.P., presiding. In opening the session Miss Bondfield said that although legislative changes must come they would have little effect in raising the standard of health unless the people were roused to the importance of obeying the laws and seeing that they were strictly administered. No matter what the legislative changes, there would always be room for voluntary effort. Amongst the legislative changes required were amendments of the Midwives Act, powers for the registration and inspection of maternity homes, and power for the compulsory removal to hospital of persons who were a danger to others. Referring to the House of Commons debate on the maintenance of the blind, Miss Bondfield said more could be done at childbirth and in early infancy to prevent blindness—a much more sensible policy.

Prof. W. E. Dixon made out a strong case for the standardisation of drugs.

Dr. C. J. Bond pressed the need for an institutional branch of a unified health service, coördinating the work of all institutions dealing with both mind and body. He wanted State aid in such a way as to retain the present voluntary and local management. The interests of the Ministries of Education and Health should be fused, the teaching of personal, sex, and social hygiene should become part of our educational system, and the Ministries of Health and Education should coöperate to secure the education of exceptional children.

Dr. F. E. Fremantle, M.P., emphasised the rôle of the individual. Voluntary effort should be encouraged on insurance principles. Laws should be so supple as not to stifle voluntary help and effort.

Resolutions.

Resolutions were passed in favour of:—

1. Establishment of an adequate hospital and institutional service instead of the present partial and incoördinated service, so frequently curtailed by lack of funds.

2. Action to be taken by the Ministry of Health with regard to the supply of wholemeal or standard bread and the education of the public as to the disadvantages of bread made from highly refined flour.

3. Prohibition of the unnecessary addition of preservatives to food.

4. Need for the extension of legislative control to infant foods consisting partly or mainly of starch.

5. Powers for the protection of children from the infection of advanced cases of tuberculosis, either by the removal of the children or of the infecting case from the home.

The Conference terminated with votes of thanks to all who had helped to promote its success. Miss Olga Nethersole is certainly to be congratulated in having assembled a large body of medical speakers, each eminent in his own particular line. The proceedings of the Conference will be published in book form in order to reach a wider circle.

SOUTH LONDON HOSPITAL FOR WOMEN. — On May 22nd the new wing of the hospital at South Side, Clapham Common, was opened by the Duchess of York. The Mayor of Wandsworth referred to the hospital, which was opened by the Queen in 1916, as an example of the efficacy of women's work and paid a special tribute to Lady Cowdray's full-hearted support as its chairman. Upwards of 50 purses, containing a total of some £1100, were presented to the Duchess of York by representative bodies and citizens of South London towards the cost of the new wing which has been furnished throughout, including theatre equipment, by an anonymous donor. The wing provides accommodation for 38 additional patients and is expected to lessen substantially the waiting list, on which at present some 600 names stand. To defray the cost of the necessary building alterations another £6000 are needed.

THE DIFFICULTIES OF INSURANCE PRACTICE.

THREE OFFICIAL INQUIRIES.

WE print below summaries of the reports of three Inquiry Committees appointed by the Minister of Health since the beginning of the year. Each committee was appointed to investigate a representation made by an Insurance Committee that the continuance on the panel of an insurance doctor would be prejudicial to the efficiency of the medical service of the insured.

The facts only are summarised which the Inquiry Committee found to be proved by the evidence submitted to them. The decision given by the Minister after considering the report of the Committee is appended to each case.

I.—*Inadequate Deputising Arrangements: Irregular Certification.*

Members of the Committee: Mr. E. H. Tindal Atkinson, C.B.E., Barrister-at-Law (Chairman), Dr. J. Divine, Dr. Alex Forbes.

The doctor had been in insurance practice since 1912; for several years he had practised in a town with a population of 44,000. He had over 1600 insured persons on his list. He had two consulting rooms, one at his own residence and one at a neighbouring smaller town.

With regard to the specific charges made in the representation of the Insurance Committee, the Inquiry Committee found the following facts to be proved:—

1. The doctor left home on August 4th for a short holiday, returning on the 9th. During his absence his house and consulting rooms were closed and no arrangements were made with any other doctor for the treatment of his insured patients. The local medical officer of health, Dr. A. B., had consented at the doctor's request to attend two of his patients (one of whom was an insured person), but had not been asked to exercise any general supervision over the needs of the insured patients, neither could he have done so owing to his public duties. The Insurance Committee received no complaints from any insured persons as to want of attention during the doctor's absence.

At the hearing the doctor produced a notice which stated that he was absent until August 9th, and that cases of emergency could be referred to Dr. A. B. or to another doctor. This notice, he stated, was affixed to the door of the consulting room during his absence, but the Insurance Committee contended that this notice had never been exhibited.

2. Before going on his holiday the doctor signed intermediate certificates for eight insured persons on his list, the certificate in each case stating that he had examined the patient on a date when he was, in fact, away. The causes of incapacity were mostly ailments involving some probability of continuance. On his return the doctor issued a first certificate to an insured person, antedating it one day before his return.

3. The doctor had also issued insurance prescriptions to 16 persons not on his list; two of these were cases of urgency not admitting of inquiry, and in the other cases there had been some mistake as to names, initials, or identity. The doctor also issued prescriptions to three persons who were on his dispensing list, and in one case he issued 14 post-dated prescriptions to a patient resident two miles from his house.

4. The doctor's wife owned shop premises adjoining the doctor's residence, which were let to an insurance chemist, C. D. A disagreement, which developed into a personal quarrel, arose between the doctor and the chemist in connexion with the renewal of the tenancy. After the date of the notice to

terminate the tenancy the chemist noticed a marked falling off in the number of insurance prescriptions brought to him. The doctor admitted that where insured persons asked his advice as to the choice of chemist he gave it to them, and it did not seem to be disputed that in such cases he had advised them to go to some chemist other than C. D.

The Inquiry Committee drew the following inferences from these facts :—

(1) In leaving for his holiday as he did, the doctor committed a breach of the spirit as well as of the letter of Article 10 (2) of the Terms of Service. [Article 11 (2) in the current Regulations of 1924.] They did not accept the doctor's argument that this Article gives the doctor a right to go away for a week without making deputising arrangements; neither did they accept the doctor's plea that the ordinary provisions for emergency treatment were sufficient to meet any difficulties which might arise.

"We think on general grounds that no insurance doctor should be recognised as able to leave his practice even for a few days in a kind of pious hope that all will be well and that his brethren will render assistance in cases of emergency. The fact that no person either complained or gave evidence of having suffered inconvenience must be noted in the Respondent's favour, but this does not alter our view as to the standard of conduct which should properly be attributed to an insurance practitioner when taking a holiday and not faced with a sudden and unlooked for emergency. Even if we had come to the conclusion beyond all doubt that the notice produced to us had been exhibited and that Dr. A. B. had given some promise of supervision, we think that an arrangement of this kind, particularly in view of Dr. A. B.'s position, would have been wholly inadequate for securing proper attention and treatment for insured persons."

(2) The Committee considered that the certification irregularities constituted the gravest of the charges. They thus expressed themselves :—

"We can conceive of no circumstances justifying an insurance doctor signing his name to a false statement that he had examined a patient on a date upon which in fact he had not or could not have done so. In view of the use to which these certificates have to be put and the reliance placed upon them by societies and others, we think it impossible that any latitude can be allowed or any excuse should be admitted for deliberate inaccuracy or falsity, particularly as to the date of examination."

(3) The issue of prescriptions to persons not on his list revealed a considerable amount of carelessness in keeping records, and the writing of prescriptions for patients on his dispensing list showed at least great carelessness. As regards the issue of post-dated prescriptions to one patient the Inquiry Committee stated :—

"While we think that in particular cases such a course might be justified, we feel some doubt whether in the present case sufficient grounds were shown for issuing these prescriptions in batches whereby the patient was apparently enabled to obtain an unreasonably large quantity of medicine at one time."

(4) On the charge that the doctor had influenced patients in their selection of an insurance chemist, the Inquiry Committee observed :—

"The Respondent frankly took his stand on the right of an insurance doctor to give advice to, and at the request of, an insured patient as to the choice of a chemist. While there is nothing in the Acts and Regulations directly affecting this point, we think that any conduct likely generally to interfere with the patient's freedom of choice is not desirable, although there may be particular occasions upon which such advice might rightly be given."

The general conclusion on this particular issue was that the doctor had taken too wide a view of his rights to tender advice, and that his behaviour could be called in question "more in relation to a general standard of conduct than to a test as to whether he complied with his terms of service."

Decision.—The Minister decided that the doctor's name should be removed from the Medical List, and that he should pay the costs of the Insurance Committee.

II.—*Neglect of Patient and Failure to Visit: Intoxication: Irregular Certification.*

Members of the Committee: Mr. E. H. Tindal Atkinson, (Chairman), Dr. H. G. Dain, Dr. C. E. S. Flemming.

The inquiry related to a doctor who had for some years been in insurance practice in a town of 1200 inhabitants; he had 270 insured persons on his list.

The Inquiry Committee found the following facts as proved :—

1. K. L., an insured person on the doctor's list, was taken ill on Sunday. At the request of her husband, the patient's wife sent for the doctor on Monday morning at about 9.30 A.M. The doctor, who lives about a mile away from the patient's house, arrived shortly after 3.30 P.M. The patient was ill in bed and in pain, and the doctor examined his chest, took his temperature, which was about 104°, and gave him a prescription and a first certificate stating that the patient was suffering from influenza. The doctor's hand was not steady when he took the patient's temperature and wrote the certificate, and he smelt of drink. The doctor did not visit the patient on the next day, but called again on Wednesday, shortly after 3.30 P.M., when the patient's wife complained of his not coming before. The doctor examined the patient whose condition had not improved, took his temperature, which was 104°, and administered a soap enema. The doctor's hand was unsteady and he smelt of drink. After his examination the doctor informed the patient's wife that her husband was very seriously ill, that he would probably not recover, and that it would be advisable for her to send for any relations who might wish to come upon an emergency of the kind. The doctor appeared to the patient's wife to be under the influence of drink both from his manner of speech and from the way in which he walked.

The Inquiry Committee came to the conclusion that while, on both these occasions, the doctor was capable of carrying on a simple and ordinary examination or of giving an ordinary prescription, "he was so far under the influence of drink that his power of judgment and sense of responsibility were affected, and, moreover, affected to a degree which would render him unfit to be in charge of a serious case of illness."

As the doctor failed to call on Thursday and as the patient was then worse, the patient's wife sent for Dr. M. N., an insurance doctor in a neighbouring area, who discovered that the patient was suffering from pneumonia, and immediately took active steps to treat him for this complaint. Dr. M. N. took a sufficiently serious view of the case to cause him to visit the patient daily for some eight days after this first visit. The patient's own doctor had meanwhile called on Friday and, finding that Dr. M. N. had been called in, he expressed some indignation and left the house.

2. At the request of a friend of the patient and to enable the patient to draw his sickness benefit without delay, the doctor signed a certificate stating that he had examined the patient on a day when the patient was, in fact, only seen by Dr. M. N. The doctor failed to enter on the patient's medical record card the particulars of the illness.

3. While the Inquiry Committee found that, upon the evidence adduced before them, the general charge that the doctor was addicted to excessive drinking was not proved, they found as a fact that on three occasions the doctor had to some degree been under the influence of drink. In 1915, while attending to a difficult maternity case of his own, the doctor had sent for Dr. M. N. to assist him and was on that occasion sufficiently under the influence of drink to deprive him of the confidence necessary for him to undertake the delivery of the child, although he was capable of administering an anæsthetic under Dr. M. N.'s supervision. In 1922, when he had occasion to examine a war pensioner, his hand was very unsteady and he smelt of drink. In 1923,

when appearing at an inquiry before the Medical Service Sub-Committee, the respondent was to some degree under the influence of drink.

The Inquiry Committee drew the following inferences from these facts:—

1. The charge of neglect in the treatment of K. L. was by far the gravest of those preferred; the doctor was mistaken in not calling on the Tuesday, and he was negligent in not calling on the Thursday, having regard to the opinion expressed to the patient's wife on Wednesday. The Committee did not consider that "he was in the least justified in expecting the patient's wife to undertake the responsibility of relying on her own judgment in the matter as to sending for him."

2. As regards the issue of the irregular certificate,

"The doctor raised no defence to this charge other than what he did was done in kindness. In our view this raises no defence on the plain issue that an insurance doctor had no right to put his name to a false statement on a certificate which is a document upon which of necessity great reliance has to be placed by societies and others."

3. On the charge that the doctor was addicted to excessive drinking the Inquiry Committee heard considerable evidence—much of it necessarily given in a partisan spirit—and they record that many witnesses expressed their confidence in the doctor as a medical man. The Committee came to the conclusion that the doctor—

"At times suffers himself to be under the influence of drink in a degree which is unwise, but we do not draw an inference that his lapses in this respect are other than occasional. It is scarcely necessary to point out that even such occasional lapses are to be deplored in the case of any medical man."

They point out that, of the specific cases proved, the first took place eight years ago.

Decision.—The Minister decided that the name of the doctor should be removed from the Medical List and that the doctor should pay the costs of the Insurance Committee.

III.—*Negligent Treatment: Careless Dispensing.*

Members of the Committee: Mr. E. H. Tindal Atkinson, Dr. H. G. Dain, Dr. J. Steed.

The doctor had for some years had a panel practice in a town with a population of 100,000; he had 321 insured persons on his list.

The Inquiry Committee found that the following facts were proved with regard to the specific charges contained in the Insurance Committee's representation:—

1. E. F., an insured person on the doctor's list, called at the doctor's surgery in the evening and requested the doctor to examine him as he was suffering from abdominal pains. The doctor did not examine him, but gave him a bottle containing some fluid which was labelled "one tablespoonful every four hours." The bottle was of a kind and shape ordinarily used for liniment and had the words "not to be taken" moulded in the glass. The patient felt doubtful whether a mistake had not been made and returned the same evening to the doctor who gave him an assurance that the medicine was all right. The patient was still not satisfied, and a day or two later he instructed his wife to take the bottle to the clerk of the Insurance Committee, who suggested that she should take it to a local chemist. The latter, discovering that the liquid in the bottle consisted partly of turpentine, gave certain advice to the patient's wife, who thereupon took the bottle back to the Insurance Committee clerk in whose custody (except during a subsequent analysis) it remained until the date of the inquiry. The patient did not, in fact, take any of the contents of the bottle. An analysis showed that about 80 per cent. of the liquid consisted of an aqueous infusion of gentian and about 20 per cent. of turpentine containing resin in solution. The two liquids would not mix, although upon being shaken the turpentine would for a short time take the form of an emulsion in the other liquid. From the medical point of view, the Inquiry Committee state, such a mixture was not suitable for dyspepsia or for any ordinary complaint of the kind from which the patient was apparently suffering.

2. About ten days later the patient, feeling dissatisfied, called on the doctor and requested him to sign a form of transfer to the list of another insurance doctor. The doctor asked for a fee of 6*d.* for the signing of the form; the patient, not having money with him, did not pay the fee demanded and the transfer form was not signed.

3. G. H., another insured person on the doctor's list, was taken ill with pleurisy and pneumonia. The doctor called to see him on a Thursday and conducted a somewhat cursory examination. The patient's wife sent for the doctor to call on the Friday and herself went to see the doctor on the Saturday, informing him that her husband was seriously ill and raving. The doctor did not call to see the patient on either of these days but promised to send some medicine on the Saturday. The medicine was not sent. A message was sent to the doctor to call on the Sunday; he could not call on that day because he was himself ill and in bed.

Dr. I. J., another local insurance doctor, was therefore called in on Sunday and attended the patient; he found that the patient had been suffering from pneumonia, but that his condition was then improving. The patient's own doctor called to see him on the next day, Monday, but the patient's wife refused to allow him to see her husband, informing him that Dr. I. J. was then in charge of the case.

The Inquiry Committee found the following inferences of fact:—

(1) In the case of E. F. the doctor failed to give adequate medical treatment. His actions were criticised under three heads: (*a*) he supplied medicine to a patient whom he knew to be an insured person, for a case that was not one of emergency and at a time when chemists' shops were open and a prescription could have been dispensed; (*b*) he supplied medicine to be taken in a "poison" bottle; (*c*) he included turpentine in the mixture which rendered it unsuitable for internal use. The latter two acts, although apparently lacking a deliberate wrong intention, can be attributed only to carelessness for which it is difficult to account. The Inquiry Committee felt bound to draw the inference that the doctor was on this particular occasion not in a fit mental condition to deal with patients at all. In the absence of evidence they did not suggest possible causes for this condition.

(2) The Inquiry Committee considered the doctor's action in demanding a fee for signing the form of transfer was contrary to the spirit of the terms of service; they were unable to find that the charging of a fee for such a service was definitely prohibited by the Regulations.[1]

(3) The doctor was negligent in not calling to see G. H. on the two days subsequent to his first visit, as this patient was then seriously ill and should not have been left unattended.

The Inquiry Committee called special attention to the conduct of the doctor at the inquiry. Although every effort was made to point out to him the serious nature of the charges brought against him and to invite him to deal with them by the test of cross-examination and by adducing affirmative evidence in his favour, he did not seem capable of appreciating the nature of the inquiry or his position as respondent to these charges, and he did little to furnish any reply by way of defence.

Decision.—The Minister decided that the doctor's name should be removed from the Medical List and that he should pay the costs of the Insurance Committee to an amount not exceeding £20.

[1] Since Jan. 1st, 1924, the insured person can change his doctor at any time and the transfer form is, therefore, not now in use.

BRITISH EMPIRE EXHIBITION, WEMBLEY:

ITS MEDICAL AND SANITARY ADMINISTRATION.

"This Exhibition . . . stands for the coördination of our scientific knowledge and a common effort to overcome disease . . . in many parts of the Empire."—H.M. THE KING.

III.

AN important factor in the success of a great undertaking such as a national exhibition is the provision of adequate medical and sanitary services; and at Wembley this is more important than it has been in the case of former exhibitions, owing to the enormous size of the undertaking, and to the fact that there is a very considerable permanent population in the Park largely unused to Western ideas of sanitation.

The medical and sanitary services at Wembley are in themselves well worth bringing forward as features of an all-British exhibition. One of the chief objects of the display at Wembley is to allow every profession and trade a chance of showing its recent march of progress to its lay brethren, and we have at Wembley an opportunity of exhibiting to the public how its health and well-being are cared for in a place where it probably least expects to find such an adjunct to their safety and convenience. The lack of such essential adjuncts in many places where large numbers of people congregate is a sign that those responsible for the management of exhibitions often forget the necessity for any such provision or, at the most, offer it grudgingly and insufficiently. The contrast that Wembley makes with the usual exhibition is in no respect more striking than in the care taken to supply adequate sanitation and medical aid. Both services are remarkably complete and well equipped, and if more descriptive information had been supplied to visitors a very valuable and important exhibit would have resulted—one which would have been highly instructive to many who have little idea what would happen if large crowds are collected together without any precaution being taken against the results of accident or the spread of sickness. Information along these lines may be good seed sown in the minds of many who will at some future time have the responsibility of making arrangements for the organisation of large congresses of all sorts.

The medical staff at the Exhibition consists of the following officers: General Guise-Moores, Director of Medical Services; Dr. C. E. Goddard, medical officer of health; Colonel D. Lawson and Dr. Marjorie Thompson, assistant medical officers.

We are indebted to the Director and the Medical Officer of Health for the information which follows upon the side of the Exhibition under their control.

At numerous places in the grounds, buildings, and amusement park there are first-aid cabinets each in telephonic communication with its affiliated ambulance station, of which there are three. The main station of these is near the south-west entrance to the grounds, and is equipped with 14 beds, eight for women and six for men. This station practically corresponds to a miniature army casualty clearing station, and is connected by telephone with two sub-stations, one of which is situated near the Hong-Kong pavilion and the other near the north entrance to the grounds. None of these posts or stations is marked on the map which is given in the official guide book, and so all are rather difficult to locate.

The motor ambulances are new and of the most modern construction, enabling the transport of the sick or injured to be undertaken with promptness and with all possible regard for the patient's plight. A serious case, which it is not possible to treat at once or continue to treat after first aid in the main ambulance station, is sent to the Willesden General Hospital, where 30 beds have been reserved for the Exhibition authorities. Natives from any of the colonial encampments will be treated at the Seamen's Hospital, Greenwich, where arrangements have been made for the inmates. There is no reason to fear that these extensive facilities for the treatment of sickness will have to be utilised, but it is excellent that the authorities of the Exhibition should not have fallen into the error so common in the past of having to improvise hurried treatment of the sick and measures for the prevention of the spread of disease in the presence of some serious emergency. This is due to the efforts of the Standing Committee held since last October, under the chairmanship of Major-General W. W. O. Beveridge, the Chief Medical Adviser to the Wembley Empire Exhibition and the head of the St. John Ambulance Association and of the Red Cross Society, with the medical officer of health. It should be mentioned here that the St. John's Order and the Red Cross Society have generously provided most of the equipment and personnel, while the Exhibition authorities erected the main station and the north and east stations, and the cabinets.

The sanitary arrangements at Wembley have presented far greater difficulties to the practical sanitarians who have faced them than are suggested by the provision of 15 large lavatories in the grounds, and of several more in the Stadium. One of the most difficult aspects of the matter has been to induce the natives in the various encampments to follow the maxim of "When in Rome do as Rome does." For example, some of the native customs are not intended to be carried out in conjunction with a water-closet system, and tact has been necessary to overcome native prejudices. But the sanitation for a very large number of natives is now running smoothly on Western lines. The natives in addition have their special kitchens and two sanitary inspectors to see after the living quarters and the general sanitation; these inspectors are responsible to the sanitary officer, who in turn reports to the medical officer of health.

For the visitor the accommodation is ample and well fitted, and is supervised by one female and two male inspectors responsible to the sanitary officer. The whole of the drainage is on the water system and the surface drainage is by a separate conduit. To provide for the needs of the Exhibition the Wembley Park sewer had to be enlarged up to a diameter of 5 feet, and a sewage farm at Alperton has been constructed at a cost of £40,000, chiefly, though not exclusively, for the purposes of the Exhibition. Rubbish from the various buildings is placed in bins, which are emptied two or three times a day. It is then sifted and burnt by means of eight incinerators installed in the incinerator house on the south-east side of the Exhibition grounds. Food refuse from the many restaurants is collected between 11 P.M. and 6 A.M. by the Wembley Urban District Council and by them removed from the grounds and destroyed. The water-supply of the Exhibition is from the local mains as well as from a specially built reservoir in the grounds which holds over a million gallons.

A feature of the Exhibition, little advertised and extremely difficult to find, being unmarked on the map as well as being unknown to the guides, is the Welfare Hut or Children's Day Nursery. This most excellent institution is under the charge of Dr. Barry Lambert, director of the Central Council for Infant and Child Welfare, who is assisted by trained nurses and V.A.D. helpers, and also by a kindergarten teacher. The children are received and returned to their parents on a check system, and over 100 children can be taken at a time at a charge of sixpence for four hours. They are fed and looked after, either in the hut or in the surrounding garden, which, though small, is well suited to the purpose. The hut, which is most excellently fitted up, is bright, clean, and airy, and being of comparatively inexpensive

build should form a model for similar institutions in many of our holiday resorts, where, during an all too short spell by the sea, mothers and young children often react upon each other to their mutual detriment.

The medical and allied services at Wembley are excellent, the buildings are lofty and not too overcrowded with exhibits, the amusements are nearly all in the open air, and the seating and lavatory accommodation is ample and well fitted. If the sun will only allow the roads and paths to dry and the gardens to flourish Londoners in particular and visitors in general should be able to obtain many hours of healthy pleasure amid agreeable surroundings.

A HEALTH BILL FOR THE IRISH FREE STATE.

(FROM OUR OWN CORRESPONDENT.)

IT is expected that the Committee of Inquiry into National Health Insurance and the public medical services of Ireland generally, promised at the beginning of the year, will shortly be set up. As its terms of reference are said to be comprehensive, it was thought that no health measure would be introduced until the committee had submitted its report, but last week the Minister of Local Government and Public Health introduced a Bill which touches on several important matters concerning health. Its main provisions are two: (1) The abolition of rural district councils and the transference of their functions to the county councils; (2) the appointment for each county of a whole-time medical officer of health. These changes will be very beneficial, if they come into effect, from the point of view of health. The rural district is too small to form a convenient administrative area, and the members of its council were often too susceptible to local influences to be efficient. The appointment of whole-time medical officers of health is a reform long overdue, and one which the medical profession has long been pressing.

In the present Bill the Minister has his duties as Minister of Health laid down for the first time: "It shall be the duty of the Minister in the exercise and performance of his powers and duties, to take all such steps as may be desirable to secure the preparation, effective carrying out, and coördination of measures conducive to the health of the people, including measures for (*a*) the prevention and cure of diseases, including the avoidance of fraud in connexion with alleged remedies therefor; (*b*) the treatment of physical and mental defects, including the treatment and care of the blind; (*c*) the initiation and direction of research, and the collection, preparation, publication, and dissemination of information and statistics relating thereto; (*d*) the training of persons for health services." The Minister also seeks power to establish consultative councils to give him advice and assistance in connexion with matters of health.

The Bill, in its general principles, is on sound lines and carries a step further the reforms suggested five years ago by the Irish Public Health Council. Ardent reformers will regret that the Minister has not ventured even further, but it may be that he did not wish to forestall the advice of the Committee of Inquiry. In matters of detail, no doubt, some improvements can be made. The conditions under which pensions can be obtained in compensation for loss of office are not as clear as they might be. It appears as if the grant of a pension were still to be an act of grace rather than a right. Again, a *consultative* council is just as much or as little use as the permanent officials wish; on the other hand, an *advisory* council, with power to initiate advice, can make its influence felt more effectively, and in a way more helpful to the Minister.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Ætiology of Death at Different Age-Periods.

IN a very interesting lecture on the principal causes of death at various age-periods Prof. Pirquet showed that in the life-cycle of humanity there are several well-marked periods in which certain conditions are liable to cause trouble. Thus, in earliest childhood disturbances of nutrition, infectious diseases, and neglect of general care are responsible for the majority of deaths. Whilst in China and India about 50 per cent. of all babies die in their first year, in the European northern countries the figure is brought down to less than 10 per cent. Of the infections tuberculosis is the chief source of danger to life. In the second year of life the organism is much more resistant. But here the acute infectious diseases—scarlet fever, measles, whooping cough, and diphtheria—are the worst "scavengers." At the time of puberty the organism changes its reaction towards this disease: the lung is most apt to harbour and respond to Koch's bacilli; girls in particular are prone to these attacks, and in them the so-called "galloping phthisis" has its maximum incidence between 15 and 20 years of age. The age-incidence in youths is between 18 and 24. The same age-period shows also a maximum of deaths due to a group of constitutional diseases, which have not yet been fully investigated—namely, articular acute rheumatism, chorea, and endocarditis. Appendicitis also has its "optimum" (*sic*) at the period of puberty. In places where sanitary conditions are at a low level the worst enemy of middle age is abdominal typhus; the best prophylaxis is an abundant supply of healthy water. In Vienna, for instance, the new water-supply opened in 1871 has caused the disappearance of typhus, formerly a most common disease here. The mortality due to the dangers of pregnancy and delivery and the puerperium is highest at 30 years. The age-period of 30–60, besides chronic tuberculosis, shows already the influence of the degenerative diseases. Diabetes and Graves's disease appear as ætiological factors, and organisms weakened by syphilitic infection succumb at this period to its effects. General paralysis of the insane is most frequent at the age of 40–45, aneurysm kills its victims between 50 and 55 years, tabes at about 55–60 years. The deadly action of alcohol and lues upon the liver is most marked at about 45–55. All these conditions attack chiefly the males, as also does pneumonia, which the senescent heart can no more overcome. The females, however, are less prone to this disease, for only half as many women as men die from it at that age (55–60); on the other hand, the female organism of that age begins to feel the effects of cancer of the sexual organs (maximum incidence between 50 and 55), and the venous circulatory system of females is more enfeebled, whilst in the males it is the arterial system that suffers first. After the sixtieth year, cancer of the mouth, the intestinal canal, the other abdominal organs, and the skin appear in the ætiology of death; males are liable to arteriosclerosis, emphysema, and angina pectoris: females to chronic rheumatism, embolism, and thrombosis. At the age of 80 the brain starts to "strike," a hæmorrhage may suffice; or the kidneys, the prostate, the lungs stop their service—a slight digestive trouble or bronchitis brings the end.

Serum Dosage.

In a symposium arranged by the "College of Doctors" of Vienna, Prof. Kraus, formerly of Buenos Aires, delivered a lecture on the technique and dosage of certain therapeutic agents, which were frequently the source of uncertainty to the practitioner. The following rule, worked out by Schick and Kassowitz, Prof. Kraus said, holds good: In mild cases of diphtheria, 100 units of antitoxin; in severe cases, 500 units per kilo body-weight. Subcutaneous injection for mild, intramuscular for severe or older cases is best. The intravenous route is only used in

hypertoxic cases, and is fraught with danger. The concentrated sera are better than the others, as much less frequently do they give rise to after-troubles. Even ordinary horse serum may cause albuminuria, œdema, or exanthema. Antitetanic serum is to be used in the same way as antidiphtheritic serum; it is tested nowadays by the indirect method, and its dosage is on the same lines as above. It has been found that the mortality from tetanus can be kept low by the serum, but the effect is not so brilliant as in diphtheria. Its prophylactic value is beyond question, however. Behring advised the use of 20 to 200 units, and cases with a long incubation period show the best results. Every case where tetanus infection is suspected should be treated at once prophylactically. The value of polyvalent serum against dysentery, so often recommended, has no experimental foundation. Prof. Kraus urged the prophylactic use of diphtheria serum, a method not much in favour in Vienna. A serum prepared from cattle, not from horses, is used for this purpose, and its effects are very good for producing passive immunisation; it has hardly any undesirable after-effects, not even after re-injection. As regards anaphylaxis and "serum disease," the two conditions are not identical, but conditions similar to the first-named are caused by intravenous injections of serum. Altogether, the methods are so much used and known all over the world that one should never hesitate to utilise them in prophylactic work.

Death of Prof. R. Paltauf.

Dr. Richard Paltauf, professor of pathological anatomy of the Vienna University, recently passed away at the age of 67, after a long illness. He was a pioneer of serology and micro-biology, and was an ardent adherent of Koch's methods. At an early stage of his career he made his name known by his researches on the diseases of rag-collectors, which he recognised as anthrax; on diphtheria, rhinoscleroma, and on pellagra. The pathological institute of the second largest Vienna hospital, which was put under his charge as chief when he was quite a young man, soon became the Mecca of all students of pathology. The Pasteur treatment of rabies attracted him greatly and he studied this subject in Paris, and on his return he decided to organise a similar institute in Vienna. His efforts resulted in the founding of the Austrian Institute for Prophylactic Vaccinations, which became a model for all other European centres of like nature. The production of antidiphtheritic serum in Vienna was organised by him on a large scale, when its effectivity was proved, and from this institute there emanated a long series of important papers dealing with the advances made by such researchers as Chvostek, Pirquet, Schick, Lipschütz, and Pribram. In a few years a huge serotherapeutic institute was erected, which again was the centre of attraction for all students. Important researches on the endocrine glands were made there by Biedl and Joannovics; and a number of other most important investigations pertaining to public health problems are all in a wide measure due to the zeal of this unique man. In 1903 he was appointed professor of general and experimental pathology, and published a series of papers on lympho-granulomatosis, on the liver in various conditions, and on leukæmia. His chief merit was the teaching of a staff of excellent research workers; he has actually founded a "school" of pathology. He was also an eminently patriotic man, whose soul was much depressed by the turn the political affairs took in our country; and the downfall of the empire, which he long ago predicted, left him utterly broken-hearted. His death leaves a serious gap in the phalanx of the teachers who coöperated in forming a Vienna School of medical knowledge.

CONGLETON WAR MEMORIAL HOSPITAL.—On May 22nd the Duke of York declared open the war memorial hospital built at Congleton at a cost of £13,000. It is opened free of debt and is constructed for 12 beds and four private wards.

Correspondence.

"Audi alteram partem."

WASTING DISEASES OF CHILDHOOD.

To the Editor of THE LANCET.

SIR,—I have read with considerable interest Dr. W. Cramer's letter in THE LANCET of May 17th, in which he suggests that in my second Goulstonian Lecture I have under-estimated the incidence of xerophthalmia in Great Britain, and over-estimated its incidence in Denmark, and that my observations "may give a wrong impression of the actual incidence of the disease and of the significance of this incidence."

My information on the incidence of xerophthalmia in Denmark was derived from the writings of Prof. C. E. Bloch of Copenhagen. In his last paper on this subject Prof. Bloch says: "Before and especially during the war, there were many cases of xerophthalmia. In a recent investigation undertaken for the Danish Ophthalmological Society by Olaf Blegvad, from 600 to 700 cases of xerophthalmia were found to have occurred between 1909 and 1920 among children, in a population of less than 3,000,000, and there were probably others."[1] The figures concerning the incidence of xerophthalmia in the Birmingham area were supplied to me by Mr. Beatson Hird, surgeon to the Birmingham and Midland Eye Hospital. The area from which the hospital draws its patients has a population of more than one half the population of Denmark, yet during the same years the number of cases seen averaged only one per year, whilst no cases were observed at the Children's Hospital.

At the time my lecture was given, Dr. Cramer's interesting address, in which he gives Dr. Marshall Findlay's experience of the occurrence of xerophthalmia (keratomalacia) in an industrial school, and its cure by giving cod-liver oil and swede juice, had not been published. Although all the cases observed in Birmingham during the period I have named were mild ones, I feel quite sure that Dr. Cramer is right when he states that mild forms of the disease may not always be recognised. His remarks on the significance of the occurrence of even a few cases of xerophthalmia are of great importance and I entirely agree with them; indeed, I hoped that I had made clear in my lectures the important part which vitamin-A deficiency may play in the wasting diseases of infancy.

I am, Sir, yours faithfully,
LEONARD G. PARSONS.

Birmingham, May 26th, 1924.

TOXIC EFFECTS OF LOCAL ANÆSTHESIA.

To the Editor of THE LANCET.

SIR,—Among the recommendations of a committee of the American Medical Association (see THE LANCET, May 17th, p. 1013) is the injunction "that cocaine paste should never be used," presumably because of its toxic effects. I do not know what exactly the committee means by "cocaine paste," but if it is the mixture that goes by that name in London, then I, for one, am at a loss to understand the downright condemnation. The paste, as we use it, consists of pure cocaine hydrochloride powder mixed with solution of adrenalin (1–1000) to the consistence of a mud or paste, and I have been employing it regularly five or six times a week for the last ten years as my mainstay in anæsthetising the nose, during the whole of which period I have not had one single case of cocaine poisoning, not even of the milder variety. This claim may seem surprising, and the surprise will not be lessened when I say that in the septum resection operation I habitually use as much as from 4 to 6 gr. of cocaine for each case. Not only so, but, when a general anæsthetic is being used for that operation, I apply the paste to the septum as a

[1] Amer. Jour. Dis. Children, 1924, xxvii., 139.

preliminary, and my anæsthetist friends can testify that that step is followed by no evils.

The secret of safety seems to lie in the judicious use of adrenalin. In making his application let the surgeon paint the mucosa first of all with pure adrenalin solution alone and undiluted, in order to induce the local anæmia that minimises absorption, and, at the same time, denudes and exposes the sensory nerve-endings. Then the cocaine-adrenalin paste may be safely applied. It may, I think, be laid down as a rule that cocaine, whether in powder or in solution, should never be employed without adrenalin. The paste is, we must remember, not suitable for all purposes. I have never ventured to use it in the pharynx for example.

I am, Sir, yours faithfully,
DAN MCKENZIE.

Wimpole-street, W., May 22nd, 1924.

THE LATE MR. WALTER THOMPSON.

To the Editor of THE LANCET.

SIR,—May I be allowed to write a few words in memory of the late Mr. Walter Thompson, whose death was noticed briefly in your columns last week? I was his house surgeon, and later as resident surgical officer came much into contact with his cases. His work at the General Infirmary at Leeds was an example for all, the quiet methodical way in which he carried on his duties resulting in a maximum of efficiency. His keen, kindly interest in his old in-patients—whose personal history he would often know—was the admiration of those with whom he came into contact. I remember an occasion when he undertook the removal of a gangrenous appendix in a boy who had scarlet fever, and could not be moved to a nursing home owing to his infectivity. Unfortunately, in addition, a nurse was not available at the time. The operation was performed in the bedroom of a lonely farmhouse, the patient's doctor assisted, whilst I administered the anæsthetic. Notwithstanding the difficulties the operation was conducted with a perfect technique and the case did well. It was allowed by all that he was a surgeon in the broad sense; besides being an efficient operator, he knew how to decide under what conditions to operate and when not to do so, with proper adjustment of his operating measures to the condition of his patient; to this may be attributed the fact that his mortality rate was minimal. His practical knowledge of anæsthetics was of considerable value. By his death I, like many of his house surgeons, have lost a friend.

I am, Sir, yours faithfully,
A. P. BERTWISTLE.

Appleby, Westmorland, May 23rd, 1924.

PYORRHŒA ALVEOLARIS.

To the Editor of THE LANCET.

SIR,—Your review [1] of the present position of dental and alveolar sepsis in regard to general disease prompts me to make a brief comment from the pathologist's point of view.

1. The reason why there is confusion on the question as to whether dental sepsis is a cause or effect of systemic infection is, I believe, because histological examination of the blood is so frequently omitted. In this respect, I am not using the term as synonymous with the mechanical count of the corpuscles. The histology of the blood cells is often a reliable guide in the determination of the degree of systemic septic infection and is of marked assistance in the treatment of the patient.

2. As regards vaccine-therapy, I do not believe that vaccines should be expected to have any marked effect by themselves on the condition of the mouth. In my experience, however, I am not infrequently called upon to prepare a vaccine for this sole purpose. I invariably decline.

[1] THE LANCET, May 24th, p. 1063.

3. Given oral sepsis and histological signs of systemic infection in the blood, if one prepares an autogenous vaccine—I do not use the stock variety—from the buccal or dental lesion only it is seldom of marked benefit in systemic infection. Formerly I used to adopt this course, but after considerable experience found the results often disappointing. For some three years I have investigated the stools also, and I have found that vaccines prepared from intestinal streptococci are of much greater benefit. In other words, though I would not for a moment under-rate the necessity for turning off the oral tap by dental surgery, it appears that the streptococci from that source exert their systemic effects when they grow, as they almost invariably do, in the intestine.

I have not found the cultural characteristics, including the tests for hæmolysis, of much value as a guide to pathogenicity. A far more useful procedure is to incubate the isolated organisms with successive dilutions of normal human serum and then plant out each dilution on plates of appropriate media. Generally speaking, the strains that resist human serum in high concentration are pathogenic and vice versa. Certainly vaccines from the serum-resisting strains are of much greater clinical value.

I am, Sir, yours faithfully,
A. KNYVETT GORDON, M.B., B.C., B.A. Camb.

Bedford-square, W.C., May 24th, 1924.

TARTAR EMETIC IN BILHARZIASIS.

To the Editor of THE LANCET.

SIR,—May I draw your attention to the inaccuracy of the footnote on p. 1071? I was the first to use tartar emetic in bilharziasis, and mention is made thereof in "The Biology and Treatment of Venereal Diseases," published in 1915. Furthermore, you were good enough to draw attention to this in your columns when Dr. Christopherson published his original papers on the subject.—I am, Sir, yours faithfully,
J. E. R. MCDONAGH.

Wimpole-street, W., May 23rd, 1924.

HERPES AND VARICELLA: THEIR ÆTIOLOGICAL RELATIONSHIP.

To the Editor of THE LANCET.

SIR,—The relationship of herpes zoster to varicella is a much debated question, but in the outbreak of the latter disease to be described there seemed to be no other source of infection than contact with a case of herpes zoster. The eight children attacked had all been in a diphtheria ward of the South-Western Hospital for periods varying from 21 to 74 days. With the possible exception of the last case, who had only been in hospital 21 days, they can therefore hardly have contracted the disease before admission. A case of varicella had occurred in the ward concerned on Feb. 14th. It was promptly removed; and no further cases resulted from it, and as none of the children attacked later were in the ward at the time, they cannot have been infected by it. Other wards, under a different medical officer, in which varicella had occurred were taken out of quarantine on Feb. 24th, and there was no recognised case of varicella in the hospital after that date until May 2nd, when the outbreak about to be described occurred.

On April 17th, F. R., admitted to the ward in question on March 26th, developed typical herpes zoster, partly on the back and partly on the chest. He had a history of having had varicella some time before, and showed several good scars in confirmation. He had not been out of bed owing to his diphtheria, but was not isolated.

On May 2nd, E. C., who was admitted on March 25th from Queen Mary's Hospital, Carshalton, where he had been under treatment for tuberculous hip, and who was discharged back there on April 25th from the ward concerned, developed chicken-pox at Carshalton.

On May 3rd, H. G., admitted on March 29th to the same ward at the South-Western Hospital, and B. H., admitted on March 2nd, developed mild varicella. The latter is said

to have had it before but no scars were detected. On May 4th two fresh cases occurred, one on the 5th, and two more on the 7th. Of the seven other children in the ward, five were said to have had chicken-pox, three of them showing excellent scars. The cases which make up the outbreak were all mild except two, which were moderately severe.

If the first case, E. C., contracted the disease before admission to the South-Western Hospital, it must have had an incubation period of 38 days; if he contracted it after leaving the hospital, the incubation could not have been more than seven days, both unlikely periods. On the other hand, he developed it 15 days after contact with a case of herpes zoster. Of the two children who developed varicella at the South-Western Hospital on May 3rd, one had been in the ward 35 days, the other 62 days; the next two had been in 43 and 34 days respectively; the next one 54 days; while the two who developed it on May 7th had been in 74 and 21 days respectively. This last is the only one who could possibly have contracted it outside, and there is no history of exposure. The fact that all these children had been completely isolated in a fever hospital in which there had been no recognised case of varicella since Feb. 24th must be emphasised.

The only source of infection which suggests itself is the case of herpes zoster. It is noteworthy that this patient's previous attack of varicella did not protect him from herpes zoster, although he was only 3 years old. In the cases described by Dr. H. A. Cookson, in THE LANCET of May 3rd, the patients were all over 30. That these children could have contracted varicella before admission is impossible in view of their long residence in hospital before the disease appeared, while the fact that all the cases arose 15 to 20 days after the case of herpes zoster is most significant, since this coincides with the incubation period of varicella. In fact, everything points to the case of herpes zoster as the origin of the outbreak.

I am indebted to Dr. F. Foord Caiger for permission to publish this note.—I am, Sir, yours faithfully,

AMY M. THOMS, M.D. St.And., M.R.C.P. Lond.,
Assistant Medical Officer, South-Western
May 23rd, 1924. Hospital, Stockwell, S.W.

MEDICAL DEFENCE AND PROTECTION.

To the Editor of THE LANCET.

SIR,—The recent case of Harnett *v.* Bond and Adam has excited a considerable amount of interest in the minds of the general public, and has focused the attention of the members of the medical profession on some of the many problems that may arise in the course of their daily work, and more especially on the litigation in which any member of the profession may be involved as a result of the performance of his duties to his patients and to the community at large. It has also exposed to the lay mind a possibility of securing large damages for some alleged infraction of professional treatment or procedure. The anxieties of professional life are sufficient in themselves without the addition of those inseparable from litigious proceedings.

Dr. Adam was a member of the London and Counties Medical Protection Society, and thus the responsibility of defending him was undertaken by the Society after careful investigation of the case by the Council of the Society, and he was thus relieved of the pecuniary incubus. In view of the risks run by medical practitioners in their endeavour to discharge their duties as such, it is very remarkable that all members of the medical profession do not avail themselves of the services of one or other of the two societies that are responsible for the defence and protection of their interests. It is probable that less than one-half of the medical practitioners in the United Kingdom are included in the membership of the two Societies at the present time, and it would seem to us that it is highly desirable that all practitioners should without delay join one or other of the two Societies.

We are, Sir, yours faithfully,

JOHN ROSE BRADFORD,
C. M. FEGEN.
Victory House, Leicester-sq., W.C. 2, May 27th, 1924.

THE PSYCHOLOGY OF SEA-SICKNESS.

To the Editor of THE LANCET.

SIR,—I am much interested in the remarkable explanation given by Dr. W. H. B. Stoddart (THE LANCET, May 24th, p. 1081) of the psychological origin of sea-sickness. I wonder if he could tell me whether artificial feeding interferes with the "unconscious" and renders one immune. I am a remarkably good sailor and never feel the slightest qualm, nor does my small son. We were both brought up artificially. Or is there any other explanation of the fact that some people, like Captain Corcoran, are "never, never sick at sea"? I mean an explanation from the point of view of the psycho-analyst. Is it always the psyche that is the cause of the sicky feeling?

I enclose my card, and am, yours faithfully,

May 26th, 1924. F.R.C.S.

ROYAL MEDICAL BENEVOLENT FUND.

AT a meeting of the Case Committee held recently 54 cases were considered and £614 voted to 43 applicants. The following is a summary of the new cases relieved:—

Daughter, aged 55, of M.R.C.P. Irel., L.F.P.S. Glasg. who practised in Ireland and died in 1895. She is a nurse by profession, but her health broke down five years ago. The Nation's Fund for Nurses helped her for two years but cannot continue. This case was brought to the notice of the Fund by "The Gentlefolk's Help." Voted £5.

Daughter, aged 47, of M.B. who practised in London and died in 1879. Through illness unable to help her mother, who has a boarding house and who is placed in a position of great difficulty by unavoidable debt and expense of applicant's illness. The debts are due to unsuccessful summer season. Applicant's only income last year was £17 from miniature painting and £10 from Royal Academy Fund. Voted £15.

F.R.C.P. Edin., aged 72. Medical officer until March this year, when his health completely failed. Money received up to March £246, but this has now ceased. As the applicant is not allowed to deal with correspondence or business, his wife has placed this application in the hope that the Fund will be able to give some assistance. Voted £26 in 12 instalments.

Daughter, aged 48, of M.R.C.S. Eng. who practised in Somerset and died in 1904. She had to give up her post as governess to return home to help her mother. An invalid sister who lived in Russia is now only able to earn a little by her needle. The mother is in receipt of a Fund Annuity of £20, and a paying guest, who is leaving, pays £50 for partial board. The total income this year for four people will be £80, and rent and rates amount to £42. Voted £15 in two instalments.

Daughter, aged 31, of M.R.C.S. Eng. who practised in Wales and died in 1904. She is the eldest of four children; they were brought up by their mother, whose means were very slender. When applicant left school she obtained a post as secretary. In 1915 she obtained a clerkship in a bank, but contracted tuberculosis in 1920 and was in a sanatorium for six months. Influenza this year aggravated the old trouble, and she is now confined to her bed and entirely dependent upon her mother, whose only income is £50 per annum apart from the money received from letting, which just covers rent and rates. A sister lives at home to help with the house and a brother has only had work for three months and is thinking of joining the ranks as he is unable to find employment. Voted £10.

M.R.C.S., aged 59, married, one son aged 6. Practised in Durham. Entirely incapacitated by heart failure, and is being maintained and nursed by his wife, who is using her capital to pay all expenses and school fees. The wife has placed this application as her capital is reduced to about £25, and it is a great anxiety to her and her husband. Voted £26 in two instalments.

Daughter, aged 50, of M.R.C.S. Eng. who practised in London and died in 1911. Since 1903 applicant has had to make her own way and also look after a younger brother and sister. She has supported herself by secretarial work, which is now hard to get, and she has sold her piano and all things of any value to maintain herself. She is now trying to make a fresh start, and a friend has paid a deposit on a small bungalow, taking out a mortgage in the applicant's name. She hopes the Fund will be able to give her some help, as she only received £25 from secretarial work the last 12 months, supplemented by needlework and upholstery. Voted £10.

M.R.C.S., aged 69, married. Through ill-health caused by malaria and partial loss of memory he requires attendance and constant attention. His wife was in a mental home, but has been removed to the infirmary, and is now unable to provide the 30*s.* required for her husband's maintenance. The Fund is asked to make some grant towards his expenses. Voted £26 in 12 instalments.

Daughter, aged 51, of M.D. who practised in India. Her only income is from an Indian source (£40), and she supplements this by secretarial work, which last year amounted to only £39. Her rent is 16*s.* 6*d.* per week. Applicant has a chance of work but has not a typewriter, and she asks the Fund for a grant towards a machine. The Guild joined the Fund and a grant was made of £15.

Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

THE GENERAL MEDICAL COUNCIL:
PRESIDENT'S ADDRESS.

THE summer session of the General Medical Council was opened on May 27th, when Sir DONALD MACALISTER, the President, began by calling attention to the pleasant fact that the membership of the Council had remained unbroken since the last May session. Three former members of the Council had, however, passed away during the recess: Sir Lambert Ormsby, the eminent Dublin surgeon, who retired after a year of office in 1915; Dr. Johnson Symington, one of our great anatomists, who represented the Queen's University of Belfast from 1916 to 1919; and Dr. Henry Arthur Latimer, a Direct Representative of the practitioners of England and Wales for 13 years (1907 to 1919), who was highly esteemed both in civic and in professional life.

The Position of the Irish Free State.

The President reminded the Council of the important effects upon its membership and responsibilities exerted by recent legislation following on the establishment of the Irish Free State. "These effects," he said, "have not always been clearly foreseen by the authorities concerned, and the precise bearing of the new enactments on the provisions of the Medical and Dentists Acts is even now not easily ascertainable. We are endeavouring to obtain authoritative legal advice on the subject, and this advice I propose, with the approval of the Executive Committee, to lay before the Council in camera for its careful consideration. Meanwhile it may suffice to say that, 'unless the Government of the Irish Free State should formally communicate to His Majesty's Government their desire for the continuance' of the existing system, references direct or indirect to 'Ireland' in the Medical and Dentists Acts must henceforth be read as references to 'Northern Ireland' only. In other words, the direct relations and responsibilities of 'the General Council of Medical Education and Registration of the United Kingdom' will in future be restricted to Great Britain and Northern Ireland. The universities and medical corporations and the medical practitioners of Southern Ireland will no longer be entitled to representation on the Council. The medical qualifications granted by licensing bodies in the Irish Free State will no longer entitle the holders to be registered in the British Register; and so far as I am aware no provision has been made for the establishment of an Irish Council or an Irish Register. Some of these results cannot but be disadvantageous not only to the public health, but also to medical education and to the medical profession in Southern Ireland. A temporary continuance of existing conditions, pending the enactment of local legislation, would seem to afford at least an interim solution of the difficulty, and would offer no obstacle to the introduction by the Free State Government of a permanent measure for the regulation of medicine in Southern Ireland. We are, however, advised that, whatever changes the operation of the recent enactments may bring about, we have grounds for thinking that the present members from Ireland may sit on the Council till the expiry of the terms for which they have respectively been appointed."

Overseas and Medical Reciprocity.

The President stated that the Executive Committee had procured the adhesion of six Canadian Provinces to resolutions as to registration, bringing nearer the establishment of complete reciprocity with the Dominion. From Colonel Needham, the Official Inspector of Indian Universities and Colleges of Medicine, there had also been received a series of reports on the conditions under which registrable degrees are being conferred in India. Sir Donald MacAlister expressed his hope that the good work being done by Colonel Needham would be continued. The Executive Committee, he said, had also reported that its representations made through our Ambassador at Rome, the Foreign Office, and the Privy Council, as to the effect of recent Italian legislation upon reciprocity, are likely to have a satisfactory issue.

The London School of Hygiene.

The President announced that Sir Gilbert Barling, Dr. J. C. McVail, Sir E. Coey-Bigger, Dr. W. H. L. Duckworth, Prof. J. B. Leathes, and Sir Humphry Rolleston would act temporarily as members of a Court of Governors of the London School of Hygiene, founded with the aid of trustees of the Rockefeller Foundation and of the Government. The Executive Committee of the Council, he said, had at first considered it inexpedient that the Council should appoint its own members as Governors and thus assume responsibility for the direction of a school engaged in preparing candidates for examination in public health; but the appointments had now been made on the understanding that the charter granted to the London School of Hygiene may be shortly modified.

Statistics of the Medical Profession.

The Registrar reports that the number of new practitioners registered in 1923 was the highest on record—namely, 2482—including 244 in the Colonial and Foreign Lists. In 1918 the number of students registered was 2253; in 1919 the number rose to 3420. If we assume that of the 5673 students registered in these two years—the majority being men demobilised from the forces—some 3000 have now completed their course of medical study, it would appear that about 80 per cent. have now become qualified and registered. This corresponds very closely with the forecasts, based upon previous experience, which the Council supplied to the Government departments during the war. As after 1919 the number of new students rapidly fell, it is clear that for the next few years the numbers annually added to the Register will fall in proportion, and should soon reach the figure of 1200 or so, which was the average before the war. The comparatively small number of fresh students registered in 1923—namely, 545—is no doubt attributable to the fact that, under the new regulations of the Council, the student must now *postpone* his registration until, in addition to his Examination in General Education, he has also passed a recognised examination in Elementary Chemistry and Physics. The next year's figures will, without question, be considerably higher, and will represent more truly the actual numbers who are undergoing professional instruction for medical qualifications. The period of strain on the teaching resources of the medical schools and colleges is practically at an end. In the comparative calm which now prevails, the teaching institutions will have leisure to introduce the improvements in the medical curriculum which, with their assistance, the Council has laid down as necessary or desirable at the present time.

Finance.

Sir Donald MacAlister concluded with a word on finance. "The financial position of the Council," he said, "is improved by the large increment in the fees for registration. The accounts show that the aggregate income of the General Council and Branch Councils in 1923 exceeded the aggregate expenditure by £6177. This is the largest surplus yet recorded for any one year. As I have indicated, there are much leaner years to come; but the Council has, by reason of its economies, a sufficient reserve to face these years without misgiving, and to maintain its numerous activities for the well-being of the public and the profession in full efficiency."

Course of Business.

At the conclusion of the Presidential address the Council proceeded to the consideration in camera of a communication by the President on questions relating to the Irish Free State. Fourteen penal cases await the consideration of the Council during this session, and two cases referred from the Dental Board of the United Kingdom recommending erasure from the Register.

AN ART EXHIBITION BY MEDICAL MEN.

THERE has been opened this week at the Royal Society of Medicine a small exhibition of works of art executed by medical men. There are some 230 exhibits, comprising pictures in oil and water colour—these, as might be expected, form by far the bulk of the show, etchings, mezzotints, glass-prints, photographs—some of these are very good, and a few examples of sculpture and modelling. There are no purely medical subjects, no pathological diagrams, and no story pictures illustrating either professional devotion or family tragedy. There are almost no figure subjects, apart from the few contributions in plastic designing; the bulk of the display is made up of renderings of Nature, mostly in her sunny aspect.

The following is an alphabetical list of the exhibitors:—

Dr. H. G. Adamson.
Sir Harry Baldwin, Mr. E. A. Barton, Dr. Stanley Beale, Mr. Victor Bonney, Dr. R. J. M. Buchanan.
Mr. Herbert Charles, Dr. A. S. Cobbledick, Mr. E. Treacher Collins.
Dr. W. R. Dakin, Dr. F. G. Dawtrey Drewitt.
Mr. Arthur Edmunds, Dr. H. A. Ellis.
Dr. T. R. Glynn, Sir Rickman Godlee, Mr. H. H. Greenwood, Mr. H. B. Grimsdale.
Mr. J. Hall-Edwards, Dr. John Hay, Dr. Leonard Hill, Dr. Harold Hodgson, Mr. C. Thurstan Holland, Dr. A. F. Hurst, Mr. J. Hutchinson, Dr. T. B. Hyslop.
Sir William Lister, Dr. Cuthbert Lockyer.
Dr. J. Stewart Mackintosh, Dr. P. H. Manson-Bahr, Dr. Leonard Mark, Dr. A. H. Miller, Mr. E. Miller, Mr. J. Howard Mummery.
Mr. Humphrey Neame.
Dr. J. Porter Parkinson, Mr. G. L. Parsons, Dr. S. Vere Pearson, Mr. Joseph Pollard, Dr. R. J. Probyn-Williams.
Dr. M. B. Ray, Dr. Clive Riviere, Dr. H. Leslie Roberts, Dr. H. R. Roger-Smith, Mr. W. Rushton.
Dr. H. J. Shirley, Dr. Herbert Spencer, Mr. W. T. Holmes Spicer, Sir Squire Sprigge, Dr. Louis Starr, Mr. T. G. Stevens.
Mr. Michael A. Teale, Dr. E. Sabine Tait, Sir Charles Tomes, Mr. Fred. Turnbull, Dr. H. M. Turnbull, Mr. F. A. Tyrrell.
Mr. Kenneth Walker, Dr. William Wallace, Mr. H. M. Wharry.

No attempt is here made to estimate either the particular merits of any exhibit or the particular style and efficiency of any exhibitor, but the opinion can certainly be expressed that the average of accomplishment shown is high. This, perhaps, is not surprising, as the list just given includes the names of many who are well-known exponents of their art and of several whose work has been seen in important exhibitions.

The exhibition is being held in the buildings of the Royal Society of Medicine, in the Marcus Beck Library, and is open daily from 11 until 6 to Fellows and Members of the Society and those introduced by them. The movement has been made successful by the courtesy and interest of the President of the Society, Sir William Hale-White, by the energy of the hon. secretary, Dr. Cuthbert Lockyer, and especially by the wholehearted assistance, rendered as adjudicator and supervisor of the hanging, of Mr. Sydney Kendrick. Mr. Kendrick's advice and practical help have made the exhibition a success, and the feeling of medical men who are interested in artistic production is one of real gratitude to him for his coöperation.

KENT OPHTHALMIC HOSPITAL.—The second annual conference of the Weekly Subscribers' Fund of this hospital was held at Maidstone on May 24th. Delegates attended from all over the county, representing 47,000 subscribers. The secretary's report on the progress of the Fund was most encouraging. He stated that five years ago the income was £192, whilst last year it amounted to £7926—an increase of £699 over 1922. The miners from one large colliery had joined the Fund, and there was reason to hope that other collieries would follow suit. Every police force in the county was subscribing; a large number of post office staffs had joined; and 104 stations on the Southern Railway last year contributed £1566. Last year the number of cases seen by the surgeons at the hospital was 41,000, as compared with 778 in 1901—a notable increase.

Medical News.

UNIVERSITY OF LONDON.—At a meeting of the Senate held on May 21st, Mr. H. J. Waring, the Vice-Chancellor, being in the chair, Dr. R. A. Young was appointed to represent the University at the Tenth Annual Conference of the National Association for the Prevention of Tuberculosis to be held in London in July next.—The Graham Legacy Committee reported that Mr. V. R. Khanolkar, who had been reappointed to the Graham Scholarship for a period of two years from April 1st, 1923, had resigned the scholarship on acceptance of the post of professor of pathology in the Grant Medical College, Bombay; and that, on the recommendation of the School Committee of University College Hospital Medical School, they had appointed Mr. Norman D. Ball, of the Hospital for Consumption, Brompton, to the scholarship for two years from April 29th, 1924. The value of the scholarship is in this case £300.

EPSOM COLLEGE: SPECIAL SCHOLARSHIPS.—The Council will shortly award the following special scholarships:

The Sir Walter Buchanan Entrance Scholarship.—The value is about £33 a year. The conditions fixed by the Founders of the scholarship are as follows: The Sir Walter Buchanan Scholarship is primarily intended for the sons of deceased or prematurely invalided officers of the Indian Medical Service, or, failing any such candidates, for the sons of legally qualified medical men of pure British parentage in necessitous circumstances, who have practised medicine for at least five years in India.

Leopold Salomons Entrance Scholarships.—The value of each is £50 a year, and the conditions are that candidates shall show an adequate standard of education for their age, and that their financial condition is such as to make it impossible or difficult to obtain an education at Epsom College without the help of the scholarship. Candidates must be the sons of legally qualified medical men.

St. Anne's Home Scholarship.—The value is at present £18 a year, and it will be given to a deserving and necessitous orphan daughter of a medical man who has been for not less than five years in independent practice in England or Wales.

Forms of application for any of these scholarships can be obtained from the secretary, Mr. J. Bernard Lamb, 49, Bedford-square, W.C. 1.

PROPOSED MEMORIAL TO THE LATE SIR WILLIAM MACEWEN.—A largely attended and representative meeting was held on Thursday, May 22nd, in the Hall of the Royal Faculty of Physicians and Surgeons, Glasgow, at which it was resolved to take steps to provide a suitable memorial to the life and work of the late Sir William Macewen. Dr. A. Freeland Fergus made a preliminary statement, referring to the movement, initiated shortly before his death, to obtain a portrait of the great surgeon. It was formally resolved thereafter to promote the collection of a fund to perpetuate his memory in a fitting manner, and a number of proposals were discussed, including the following: the obtaining of a bust, relief, mural medallion, &c.; the publication of a memorial volume, including particularly Sir William Macewen's earlier scientific papers; the establishment of a Macewen Lectureship or Oration. Eventually it was remitted to an executive committee to consider these and other proposals, with a view to bringing forward to a later meeting a completed scheme. The following were elected members of this executive committee: Dr. Freeland Fergus (chairman); Prof. T. K. Monro, Sir Hector C. Cameron, Sir John Reid, Mr. J. H. Pringle (vice-chairmen); Colonel J. A. Roxburgh, Dr. George A. Allan, Sir Archibald Craig, Prof. Graham Kerr, Prof. W. K. Hunter, Dr. J. N. Marshall, Mr. William Gray, Dr. J. G. McCutcheon; and Mr. Archibald Young (hon. secretary). At the conclusion of the meeting a number of subscriptions were intimated to the treasurer, Mr. James MacFarlane, LL.D., Wesleyan-street, Glasgow, who will receive and acknowledge further contributions.

EPIDEMIC ENCEPHALITIS.—The Ministry of Health states that the total cases of encephalitis lethargica (sometimes called epidemic encephalitis or, popularly, "sleepy sickness") notified in England and Wales during the week ended May 17th has been 286, to be compared with 291 for the week ended May 10th, and 262 for that ended May 3rd. Since the beginning of the year the number of notified cases has been 2473 (as compared with an annual average of 839 in the previous four years). Out of this total, 281 have occurred in London; the chief centres affected elsewhere being Manchester, Sheffield, Birmingham, and Bristol. In general, however, the cases have been widely scattered throughout different parts of the country. It is too soon to estimate the mortality caused, but on the deaths so far reported the mortality has varied in different cities from 12 to 21 per cent. of the notified cases. The

present epidemic prevalence is similar to, though more extensive than, that of the corresponding period in 1921 when a total of 1155 cases was reported. Speaking generally, there are signs of decline in the districts mainly affected, but the spread of infection to new districts results in the maintenance of the total prevalence. The existence of the disease in this country and its chief characteristics were established and described fully in reports and memoranda issued by the Local Government Board in 1918 and by the Ministry of Health in 1922. A further memorandum, about to be issued, will embody the result of the extensive inquiries now being made by the medical staff of the Ministry in different centres during the present period of prevalence. As in previous years there is little evidence that the definitely recognised cases of the disease are responsible for spreading infection, the epidemic being presumably kept up by slight and unrecognised cases or by healthy carriers of the virus of the malady. No specific measures such as vaccines are at present available either for prevention or treatment. Researches on the nature of the virus and many other problems arising in connexion with encephalitis are being actively pursued under the direction of the Medical Research Council, and in numerous laboratories at home and abroad.

IN aid of the Hertfordshire Nursing Association an Elizabethan fête will be held at Hatfield House to-day (Friday), May 30th, and Saturday, May 31st, being opened at 2 P.M. each day.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.—Further particulars of the tenth annual conference to be held in London on July 3rd and 4th (as announced in THE LANCET, March 29th, 1924, p. 678) have now been published by the Association, and may be obtained on application to the Secretary, at 20, Hanover-square, London, W. 1.

Messrs. John Bale, Sons and Danielsson, Ltd., Great Titchfield-street, W., announce for early publication the *Franco-British Medical Review*, a journal which will contain an equal number of English and French medical articles. The French articles will be translated into English, while the English articles will be translated into French, and be republished in French journals. The hope is to promote professional intercourse.

RESEARCH DEFENCE SOCIETY.—The annual general meeting of this society will be held on Friday, June 13th, at 3 P.M., 1, Wimpole-street, Cavendish-square, W., when the chair will be taken by Lord Knutsford. A satisfactory report will be submitted by the committee, and it is hoped there will be a good attendance. Dr. Andrew Balfour will demonstrate a film recently prepared by the Rockefeller Foundation, illustrating the natural history of malaria and the preventive methods against that disease. The meeting this time is being held, not at 11, Chandos-street, but at the house of the Royal Society of Medicine, where there is more room for a cinema.

PARIS: ACADEMY OF MEDICINE.—The weekly meeting on May 20th was devoted to the commemoration of the tercentenary of the birth of Thomas Sydenham. Dr. Doleris, who was in the chair, extended a cordial welcome to the three delegates from England: Dr. Sidney Phillips, treasurer of the Royal College of Physicians of London, Dr. J. A. Ryle, of the Royal Society of Medicine, and Dr. A. E. Russell, former secretary of the New Sydenham Society. Dr. Doleris emphasised the many bonds which unite medical men of England and France in common scientific interests, and spoke of the pride shared by both nations in such names as Charcot and Pasteur, Lister and Jenner. Prof. A. Chauffard, late president of the Academy of Medicine, then delivered an address on the life and work of Thomas Sydenham, an abstract of which will appear in a subsequent issue of THE LANCET.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.—Arrangements have been made for post-graduate teaching in Glasgow during the summer months—June till October. The teaching facilities are in three forms: (*a*) A general medical and surgical whole-time course, which will be conducted in a number of the general and special hospitals during the last two weeks of August and the first two weeks of September. The course is arranged to include most of the subjects of interest to the general practitioner. (*b*) Certain special clinical courses, which have been arranged in several of the hospitals to suit the requirements of general practitioners who have not very much time to devote to hospital work. (*c*) Clinical assistantships in a number of the institutions taking part in the work of the Association, which are available during the summer months as well as at other times of the year. These clinical assistantships are limited in number, and have been designed to make provision for graduates who desire opportunities for the detailed study of one or other of the "specialties." Graduates may thus become attached to wards or out-patient departments, nominally as clinical assistants. As such they will work under the direct supervision of the physician or surgeon in charge, taking advantage of the facilities for intimate study of the cases, and carrying out such detailed investigations as may be directed. These clinical assistantships provide quite exceptional opportunities for those who are able to devote the necessary time to the work, and they should appeal more especially to young graduates who contemplate practising some special subject, and to practitioners from overseas who wish to become acquainted with the methods of diagnosis and treatment employed in the various branches of medicine, surgery, and the special subjects. Copies of the syllabus, with full details of the courses, may be obtained from the Secretary, Glasgow Post-Graduate Medical Association, The University, Glasgow.

BLACKBURN INFIRMARY EXTENSION.—Blackburn's war memorial consists of an extension of the Blackburn and East Lancashire Royal Infirmary and a Garden of Remembrance. The foundation-stone of the extension was laid on May 24th by Mrs. R. A. Yerburgh. Mrs. Yerburgh and her late husband have subscribed over £31,000 to the Blackburn Royal Infirmary, which sum includes £8000 given this week. The new wing, which cost about £100,000, will have ward pavilions for 90 beds, two operating theatres, and the necessary anæsthetising, sterilising, dressing, and other rooms.

DONATIONS AND BEQUESTS.—Under the will of the late Alderman Thomas Hunter, J.P., of Leamington and Rugby, the testator left £1200 to the Hospital of St. Cross, Rugby, for a Wilfred Hunter bed in memory of his late son, and £200 to the Royal Midland Counties Home for Incurables, Leamington Spa.—The late Mr. Christian Joseph Muller, of Reigate, left by will £500 to the Royal Hospital for Incurables, Putney, and £250 to the London Hospital and the London Homœopathic Hospital.—By will the late Mrs. Ellen Cohen, of Cleveland-terrace, Hyde Park, W., left £500 to the London Ophthalmic Hospital, £500 to the Samaritan Free Hospital for Women, £500 to the Alexandra Hospital for Children with Hip Diseases, and £250 to the Surgical Aid Society.—The following bequests have been made under the will of the late Mr. Sydney Larnach, of East Grinstead: £10,000 each to the Middlesex Hospital, to St. George's Hospital, to the London Hospital, to St. Bartholomew's Hospital, to St. Thomas's Hospital, to Guy's Hospital, to the National Institution for the Blind, and to Dr. Barnardo's Homes; £5000 to Lord Mayor Treloar's Cripples Hospital and College, Alton, Hants; and £5000 to the East Grinstead Cottage Hospital.—By the will of the late Alderman Sir John Charles Bell, of Stoke Poges, the testator left £500 to the Hospital Sunday Fund, £100 each to the City of London Maternity Hospital, the Royal Surgical Aid Society, the Royal London Ophthalmic Hospital, the Royal National Orthopædic Hospital, and the Lord Mayor Treloar's Cripples Home and College. On the decease of the survivor of his wife and daughter he left £40,000 for division equally between the Infant Orphan Asylum, Wanstead; the Royal British Orphan Schools, Slough; the Orphan Working School and Alexandra Orphanage, Haverstock Hill, N.W.; the British Home and Hospital for Incurables, Streatham; the Royal Hospital and Home for Incurables, Putney; St. Bartholomew's Hospital; the London Hospital; the Hospital for Consumption and Diseases of the Chest, Fulham-road, S.W.; and the Royal Northern Hospital. The ultimate residue he left, under certain conditions, one-half as the survivor of his wife and daughter may appoint, and one-half for division between the Metropolitan Hospital Sunday Fund, the King Edward VII. Hospital Fund, the Royal Hospital and Home for Incurables, Putney, and the British Home and Hospital for Incurables, Crown-lane, Streatham.—The late Mr. Albert F. Wenger, of Newcastle-under-Lyme, left £100 to the North Staffordshire Infirmary.

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Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, MAY 22ND.

Therapeutic Substances Bill.

THE Therapeutic Substances Bill was considered in Committee, the Earl of DONOUGHMORE, Chairman of Committees, in the chair.

Earl DE LA WARR moved in Subsection (2) of Clause 4 to leave out the word "and" after "General Medical Council" and to add the words, "and one member appointed by the Council of the Institute of Chemistry of Great Britain and Ireland." He explained that the addition of these words was necessary in consequence of the decision to include the Institute of Chemistry among the bodies represented on the Joint Committee which is to frame regulations under the Bill.

The Earl of ONSLOW asked why it had been suggested that the Institute of Chemistry should be added.

Earl DE LA WARR said that the Minister was advised that in view of the status of the Institute of Chemistry it was desirable that it should be included in the list. The Pharmaceutical Society was already included.

The amendment was agreed to.

Earl DE LA WARR moved an amendment to Clause 5 excluding from the operation of the Bill therapeutic substances intended to be used solely for veterinary purposes. This amendment, he said, had been agreed upon between the Ministers of Health and Agriculture.

The amendment was agreed to.

Earl DE LA WARR moved an amendment to Clause 5 providing that regulations made under the Bill should be laid before both Houses of Parliament as soon as may be after they were made.

The amendment was agreed to.

A further amendment was agreed to, the object of which was to place beyond doubt that it is an offence not merely to manufacture without a licence but also to manufacture elsewhere than on premises in respect of which a licence has been granted.

The Bill passed through Committee and was reported to the House.

HOUSE OF COMMONS.

WEDNESDAY, MAY 21ST.

Health Consultative Councils.

Mr. ROBERT RICHARDSON asked the Minister of Health whether the Consultative Councils, authorised by the Ministry of Health Act, to advise him upon matters relating to public health administration had ever been set up; if so, upon how many occasions had they met; and when was the last meeting.—Mr. WHEATLEY replied: The answer to the first part of the question is "Yes." Four Consultative Councils were set up for England and one for Wales, under Orders in Council made in 1919. The particulars asked for in the remainder of the question are as follows:—

Consultative Council on—	No. of meetings held.	Date of last meeting.
England:		
Medical and allied services ..	31	July 1st, 1921
National Health Insurance (Approved Societies' work) ..	34	March 14th, 1924
Local health administration ..	12	July 7th, 1921
General health questions ..	24	Dec. 7th, 1921
Wales:		
Welsh Consultative Council ..	15	March 18th, 1924

Compulsory Insurance by Motor Owners.

Mr. WALTER BAKER asked the Minister of Transport whether he was aware that in many cases the owners of motor-cars did not insure their cars nor themselves against third-party risks, with the result that, should an accident occur, the injured persons were unable to obtain compensation; and whether he would consider the desirability of insisting upon the compulsory insurance of all motor vehicles.—Mr. H. GOSLING replied: The question of compelling motorists to insure against accidents has been, and is still, under consideration. There are, however, practical and administrative difficulties in framing any satisfactory scheme. Legislation would be required before any such scheme could be put into operation.

Government's Housing Bill.

Sir KINGSLEY WOOD asked the Minister of Health whether he proposed to introduce a Housing Bill or make any statement on the Government's housing proposals before the Whitsuntide recess.—Mr. WHEATLEY replied: While giving no pledge on the matter, I may say that I hope to be able to introduce the Bill before the Whitsuntide recess.

Relief for Blind Poor.

Sir ROBERT ASKE asked the Prime Minister whether the Government had framed any scheme which would relieve the blind poor from being dependent on Poor-law relief.—Mr. WHEATLEY replied: No scheme has been formed for relieving Poor-law authorities of their obligation to provide relief for destitute blind persons as for other destitute persons, but every effort is made under the Blind Persons Act to prevent blind persons from becoming dependent on Poor-law relief.

Hospitals for Early Mental Cases.

Mr. COSTELLO asked the Minister of Health whether, in view of the fact that borough councils were at present empowered by the Public Health Act, 1875, to establish and maintain hospitals for any class of illness, he would consider the advisability of allocating to the health committees of local authorities grants sufficient for the provision, where desired, of hospitals for uncertifiable cases of nervous breakdown to promote their restoration to self-supporting life while avoiding the stigma associated with institutions under the control of the lunacy authorities.—Mr. WHEATLEY replied: The terms of reference to the Royal Commission will include the question of the best method of providing for the treatment of mental disorder in the incipient stage; and pending the recommendations of the Commission—which I hope will be appointed within the next few weeks—I am not prepared to introduce legislation on the subject.

Service Patients in Asylums.

Mr. COSTELLO asked the Minister of Health the total number of Service patients at present in asylums; what occupational interests were afforded them; whether any remuneration is given for extra work voluntarily undertaken by them; whether the Brabazon scheme was in operation in any asylum; and how many Service patients were discharged from asylums during the year 1923.—Mr. WHEATLEY replied: The total number of "Service" patients in county and borough mental hospitals in England and Wales on Jan. 1st, 1924, was 4623. Newspapers, books, games, &c., are provided for recreation and amusement, and such patients as are fit for it are given employment out-of-doors on the farm and gardens, and indoors in the wards and workshops. It is the practice in most mental hospitals to reward patients so employed. I am not aware that the Brabazon scheme is in operation in any county and borough mental hospital. The number of "Service" patients discharged from county and borough mental hospitals in England and Wales during the year 1923 was 217.

National Insurance Contributions.

Sir JOHN MARRIOTT asked the Chancellor of the Exchequer the amount contributed by the employers and workmen, respectively, to the National Health Insurance and to the Unemployment Insurance Fund for the year ending March 31st, 1924, or the latest appropriate date.—Mr. W. GRAHAM (Financial Secretary to the Treasury) replied: The estimated figures are:—National Health Insurance, year to Dec. 31st, 1923: Employers' contributions, £13,700,000; employees' contributions, £12,300,000. Unemployment Insurance, year to March 31st, 1924: Employers' contributions, £18,430,000; employees' contributions, £16,590,000.

THURSDAY, MAY 22ND.

Alleged Instructions to Medical Boards.

Lieut.-Colonel WOODWARK asked the Minister of Pensions whether instructions were, or had been, given to the medical officers of the Ministry of Pensions at hospitals or on boards to consider and, wherever possible, to lower the pensions of pensioners.—Mr. F. O. ROBERTS replied: No, Sir. No such instruction has been issued by my department. Perhaps I may be allowed to add that in more than 25 per cent. of all the cases examined during the past four months the assessment for pension purposes has actually been *increased*.

Medical Examination of Policemen.

Mr. HORE-BELISHA asked the Home Secretary whether he would institute a system whereby, after a constable had been medically examined by a medical practitioner for the purpose of deciding whether he was physically capable of discharging police duties, he should be informed in writing that if he wished to appeal on medical grounds against the decision of the medical practitioner he had the right to lodge an appeal within 14 days; whether all medical practi-

tioners could be instructed to take the constable's service into account and the consequent natural deterioration of his physical powers in their medical findings; and whether, in all cases before a constable was dismissed upon the grounds of ill-health, the question of his dismissal could be considered in relation to his pension rights and efforts be made to give him a lighter form of employment in order that he might complete his time for pension.—Mr. HENDERSON replied: As regards the first part of the question, the suggested notice in each individual case would appear unnecessary if, as I presume, the police are generally aware of the existence of the appeal procedure. I will, however, take steps to make sure that this procedure has duly been brought to the notice of the members of all forces. As regards the second part, the question the medical practitioner has to consider is whether the constable is or is not incapacitated by infirmity for further police duty, and whether such incapacity is likely to be permanent; and the length of the constable's service may or may not be relevant thereto. The question raised in the third part must be left to the police authorities to decide.

Blind Persons and Health Insurance.

Sir CHARLES BARRIE asked the Minister of Pensions if he was aware that, under the National Health Insurance Act, should a person become incapacitated, but nevertheless be able to do light work, he was unable to draw any weekly allowance on account of performing light duties, and that this had been applied to people who were incapacitated by blindness; and would he introduce legislation to remove this disability in such cases.—Mr. GREENWOOD (Parliamentary Secretary to the Ministry of Health) replied: An insured person who has, through blindness or any other cause, been rendered permanently incapable of following what was formerly his normal occupation is not entitled to continue to receive sickness or disablement benefit under the National Health Insurance Acts after he has become capable of following some other remunerative occupation which is reasonably open to him, either at once or as the result of a course of training. My right hon. friend does not think it desirable to introduce legislation to enable benefit to be paid to persons who are undertaking remunerative work.

Advisory Committees on War Pensions.

Mr. ERNEST BROWN asked the Minister of Pensions the composition of the newly proposed advisory committees on war pensions.—Mr. F. O. ROBERTS replied: The scheme for the constitution and procedure of the new advisory councils is at present in draft and is the subject-matter of discussion at the series of Conferences which I am holding, in certain important centres, with representatives of war pensions committees. I may say, however, that it is intended that the new councils shall include one representative appointed on the nomination of each war pensions committee in the area covered by the council, together with direct representatives of disabled ex-Service men, widows, and dependents.

FRIDAY, MAY 23RD.

Welfare of Blind Persons.

Mr. T. HENDERSON moved the second reading of a Bill to amend the Blind Persons Act, 1920. It proposed, he said, that every blind person who had attained the age of 30 should be entitled to receive and continue to receive such pension as under the Old Age Pensions Act he would be entitled to receive if he were 70 years of age. The present pension age was 50. County councils and county borough councils were to make arrangements to the satisfaction of the Ministry of Health for promoting the welfare of blind persons ordinarily resident within their area by providing and maintaining workshops and hostels and homes for them. Those employed in the workshops were to be paid remuneration not less than the average standard rate received by unskilled labourers in the district. The number of blind persons in England and Wales from one year upwards was 36,578. Those trained and employed were 8239; those under training were only 1246; and those unemployed who were between the ages of 30 and 70 numbered 20,759.

Mr. F. MARTIN, the blind Liberal Member for East Aberdeen, who was received with loud cheers, seconded the motion for the second reading.

After some discussion,

Mr. A. GREENWOOD (Parliamentary Secretary to the Ministry of Health) said that the Government attached very considerable importance to steps for the prevention of blindness. To that question the Minister of Health was now giving his attention. He was not prepared to say that the Government would accept the details of the Bill, although they were in sympathy with its objects. The Government would give their sympathetic consideration to the future of the measure.

The Bill was read a second time without a division.

MONDAY, MAY 26TH.

Financial Grants to Hospitals.

Mr. POTTS asked the Chancellor of the Exchequer whether, from his Budget surplus, he could make an additional grant of £1,000,000 to the hospitals of the country, having special regard to industrial centres where hospitals were in serious financial difficulties.—Mr. W. GRAHAM (Financial Secretary to the Treasury) replied: The demands that have already been made on my right hon. friend's Budget surplus leaves him little scope for accepting fresh liabilities of this kind.

INFECTIOUS DISEASES IN ENGLAND AND WALES DURING THE WEEK ENDED MAY 17TH, 1924.

Notifications.—The following cases of infectious disease were notified during the week—namely, small-pox, 116; scarlet fever, 1500; diphtheria, 723; enteric fever, 95; pneumonia, 924; puerperal fever, 24; cerebro-spinal fever, 14; acute poliomyelitis, 7; acute polioencephalitis, 2; encephalitis lethargica, 286; continued fever, 2; dysentery, 4; ophthalmia neonatorum, 143. There were no cases of cholera, plague, or typhus fever notified during the week. The number of notified cases of encephalitis lethargica is practically the same as last week, the largest number of notifications coming from the counties of London, Durham, Gloucester, Lancaster, Middlesex, Northumberland, Stafford, Warwick, Yorkshire (West Riding), and others in smaller number. Of the cases of small-pox 63 were notified from the county of Derby (46 of these from Chesterfield), 13 from Northumberland (11 from Ashington), 12 from Nottingham (Hucknall and Basford each 5), Yorks, North Riding 13 (all from Middlesbrough).

Deaths.—In the aggregate of great towns the deaths from influenza fell further from 95 to 73. There were only 6 deaths in London from diphtheria, 23 from measles, and 5 from influenza.

The Services.

ROYAL ARMY MEDICAL CORPS.

OFFER OF COMMISSIONS.

Twenty or more Commissions in the Royal Army Medical Corps will be open for competition by examination on July 30th next. Applications for admission to the examination must be made to the Under Secretary of State, the War Office, Whitehall, London, S.W.1, not later than July 20th, and the presence of candidates will be required in London from July 28th. Students who have entered for their final professional examinations in July may submit applications, which will be accepted subject to candidates qualifying and being registered before July 30th.

TERRITORIAL ARMY.

Capt. R. B. Smith resigns his commn. and retains the rank of Capt.

Supernumerary for Service with O.T.C.—Capt. (Local Maj.) C. H. Budd to be Maj.

ROYAL AIR FORCE.

Flight Lt. T. J. D. Atteridge is granted a permanent commission.

INDIAN MEDICAL SERVICE.

The King has approved the retirement of Lt.-Col. V. E. H. Lindesay.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, June 5th.

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.

Specimens:

Dr. H. Russell Andrews: Lipoma Ulcerating through the Vagina and Causing Severe Hæmorrhage in a Girl of 19.

Dr. J. S. Fairbairn } Simple Ovarian Embryoma with Spread
Dr. J. Taylor } into Contiguous Structures.

Paper:
Professor J. Munro Kerr, Dr. McIntyre, Dr. James Hendry } Wounds of the Gravid and Non-Gravid Uterus—a Study of Uterine Scars.

(1) Professor Munro Kerr will discuss the subject from the clinical standpoint.
(2) Dr. McIntyre: Histological Studies of Various Uterine Scars.
(3) Dr. Hendry: Observations on the Uterine Scar after Conservative Cesarean Section:—(*a*) When the Incision was made in the Active Contractile Portion of the Uterus. (*b*) When the Incision was made in the Lower Uterine Segment.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, June 2nd, to SATURDAY, June 7th.—CHELSEA HOSPITAL FOR WOMEN. Daily Operations, &c. Wed., 4 P.M., Mr. John Ellison: Minor Displacements. Fri., 2 P.M., Mr. J. B. Banister: Cervical Polyps.—LONDON SCHOOL OF TROPICAL MEDICINE. Tuesdays and Thursdays, 2 P.M., Demonstrations on Diseases of Tropical Countries.—MAUDSLEY HOSPITAL. Wed., 2.30 P.M., Dr. Mapother: Delusional States.—ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN. Clinical Demonstrations Daily (except Sats.) at 2 and 6 P.M.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, W. 1.

FRIDAY, June 6th.—9 P.M., Lord Rayleigh: The Glow of Phosphorus.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE.

MONDAY, June 2nd.—12 noon, Dr. Greenfield: Lecture, Cellular Reaction in Nervous System. 2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Aldren Turner: Clinical Lecture.
TUESDAY, June 3rd.—12 noon, Dr. Walshe: Lecture, Anatomy and Physiology of Nervous System. 2 P.M., Dr. Walshe: Out-patient Clinic. 3.30 P.M., Mr. Armour: Compression Paraplegia.
THURSDAY, June 5th.—12 noon, Dr. Riddoch: Lecture, Anatomy and Physiology of the Nervous System. 2 P.M., Dr. Riddoch: Out-patient Clinic. 3.30 P.M., Dr. Hinds Howell: Lecture, Subjective Disorders of Sensibility.
FRIDAY, June 6th.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Mr. Sydney Scott: Lecture, Recent Studies on the Vestibular Nerve.
Applications should be addressed to the Secretary, Medical School, National Hospital for the Paralysed and Epileptic, Queen-square, London, W.C. 1.

J. G. GREENFIELD, Dean.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

MONDAY, June 2nd.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. Addison: Surgical Wards. 2 P.M., Mr. Bishop Harman: Eye Dept.
TUESDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—12.15 P.M., Dr. Burnford: Medical Pathology. 2 P.M., Dr. Owen: Medical Out-patients. 2.30 P.M., Mr. Donald Armour: Surgical Wards.
THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 12 noon, Dr. Scott Pinchin: Diseases of the Heart. 2 P.M., Mr. Simmonds: Surgical Out-patients.
FRIDAY.—12 noon, Surgical Registrar: Surgical Pathology. 2 P.M., Dr. Burrell: Medical Out-patients. 2 P.M., Mr. Vlasto: Throat, Nose, and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M. In-patients, Out-petients, Operations, Special Departments.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, June 5th.—4 P.M., Dr. Paterson: Vomiting.

ST. JOHN'S HOSPITAL, Leicester-square, W.C.

TUESDAY, June 3rd.—5 P.M., Dr. Bunch: Lupus.
THURSDAY.—5 P.M., Dr. M. G. Hannay: Lichen Planus.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THURSDAY, June 5th.—5 P.M., Mr. Richard Lake: Middle-Ear Disease. (Geoffrey E. Duveen Lectures in Otology.)

UNIVERSITY OF LIVERPOOL POST-GRADUATE LECTURES. (At 3.30 P.M.)

MONDAY, June 2nd.—(At the Children's Hospital.) Mr. McMurray: Tubercular Arthritis.
TUESDAY.—(At the Southern Hospital.) Mr. O. H. Williams: Carcinoma of the Colon.
WEDNESDAY.—(At the Northern Hospital.) Dr. A. A. Gemmell: Ectopic Gestation.
THURSDAY.—(At the Stanley Hospital.) Mr. Courtenay Yorke: Ear, Nose, and Throat Cases.
FRIDAY.—(At the Royal Infirmary.) Mr. Thelwall Thomas: Treatment of Enlarged Prostate.

BRISTOL UNIVERSITY POST-GRADUATE DEMONSTRATIONS.

WEDNESDAY, June 4th.—(At the Hereford General Hospital). 3.30 P.M., Dr. J. O. Symes: Mental Deficiency and Feeble-mindedness in Children.

Appointments.

BUIST, J. J., M.B. Lond., has been appointed Teacher of Vaccination to the Welsh National School of Medicine.

DUNN, W. J., M.B., B.Ch. Belf., Dispensary Doctor of Donamena, Co. Tyrone.

EDGE, W., M.R.C.S., L.R.C.P. Lond., Resident Medical Superintendent at the Ladywell Sanatorium, Weaste.

MCCOLGAN, F. P., F.R.C.S. Irel., Medical Officer for the Laghey Dispensary District, Donegal.

MACDONALD, R., M.D. Edin., Medical Superintendent of the Coton Hill Mental Hospital, Stafford.

WHEELER, D. R., M.B., F.R.C.S. Eng. & Irel., Throat Surgeon, North Middlesex Hospital.

St. Thomas's Hospital: FISHER, J. H., M.B., B.S. Lond., F.R.C.S. Eng., Consulting Ophthalmic Surgeon; HUDSON, A. C., M.D., B.Ch., F.R.C.S. Eng., Ophthalmic Surgeon; DOYNE, P. G., M.B., B.Ch. Oxf., F.R.C.S. Eng., Ophthalmic Surgeon in Charge of Out-patients; DE WESSELOW, O. L. V. S., M.B., B.Ch. Oxf., F.R.C.P. Lond., Physician in Charge of Out-patients; LEYS, D. C., M.B. Oxf., M.R.C.P. Lond., Resident Assistant Physician; ROSS, D., M.B., B.Ch. Camb., Officer in Charge of Psycho-Therapeutic Dept.; FILDES, G., M.B., Ch.B. Manch., D.M.R. and E. Camb., Officer in Charge of X Rays Department: HOPE-SIMPSON, J. W., M.B., B.Ch. Camb., YATES, H., M.R.C.S., L.R.C.P. Lond., CREED, R. S., M.B., B.Ch. Oxf., BERRIDGE, W. C. M., M.R.C.S., L.R.C.P. Lond., JEFFERY, A. L. P., M.B., B.S. Lond., WALFORD, A. S. H., M.B., B.Ch. Camb., WEBB-PEPLOE, M. H., M.B., B.Ch. Camb., and METCALFE, G. A., M.B., B.Ch. Camb., Casualty Officers and Anæsthetists; DYSON, A. D., M.R.C.S., L.R.C.P. Lond., MURRELL, E. B., M.R.C.S., L.R.C.P. Lond., COOPER, G. K., M.B., B.Ch. Camb., and PALMER, H. M., M.R.C.S., L.R.C.P. Lond., House Physicians; STORY, A. G., M.B., B.Ch. Camb., House Physician (for Children); LAUTRE, M. A., M.R.C.S., L.R.C.P. Lond., LUPTON, C. A., M.R.C.S., L.R.C.P. Lond., BRIGGS, T. F., M.R.C.S., L.R.C.P. Lond., and WILLIAMS, L. G., M.R.C.S., L.R.C.P. Lond., House Surgeons; ALLAN, F. G., M.R.C.S., L.R.C.P. Lond., Orthopædic House Surgeon; PEARCE, T. V., M.B., B.S. Lond., and JONES, B. H., M.R.C.S., L.R.C.P. Lond., House Surgeons for Throat and Ear respectively: CROCKFORD, A. L., M.B., B.Ch. Camb., Senior Obstetric House Physician; CHADWICK, S. A. R., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Physician; PENMAN, G. G., M.R.C.S., L.R.C.P. Lond., Senior Ophthalmic House Surgeon; BATTSON, A. A., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Surgeon; CAVENAGH, J. B., M.B., B.Ch. Oxf., NEILSON, D. F. A., F.R.C.S. Eng., HUDSON, M. W. P., M.R.C.S., L.R.C.P. Lond., STARKEY, R. S., M.R.C.S., L.R.C.P. Lond., BARRON, H. T., M.D. Lond., FACEY, R. V., M.B., B.Ch. Oxf., NAUDE, A. L. te W., M.R.C.S., L.R.C.P. Lond., MARRINER, H. I., F.R.C.S. Edin., REES, E. J., M.R.C.S., L.R.C.P. Lond., SIMS, T. H., M.R.C.S., L.R.C.P. Lond., ALEXANDER, R. D., M.R.C.S., L.R.C.P. Lond., DARLINGTON, A. F. D., M.R.C.S., L.R.C.P. Lond., MORRIS, E. G., M.R.C.S., L.R.C.P. Lond., WEAVER-ADAMS, E. R., M.R.C.S., L.R.C.P. Lond., HALLIWELL, C. C., M.R.C.S., L.R.C.P. Lond., COOKE, A. M., M.B., B.Ch. Oxf., LANKESTER, A. L., M.R.C.S., L.R.C.P. Lond., MCLEAN, W. W., M.R.C.S., L.R.C.P. Lond., THORP, K. W., M.R.C.S., L.R.C.P. Lond., DOGGART, J. H., M.R.C.S., L.R.C.P. Lond., DAVIES, D. V., M.R.C.S., L.R.C.P. Lond., HOCHSCHILD, G., M.R.C.S., L.R.C.P. Lond., BRITO-MUTUNAYAGAM, M. A. B., M.R.C.S., L.R.C.P. Lond., and BAUWENS, P., M.R.C.S., L.R.C.P. Lond., Clinical Assistants.

Leicester Royal Infirmary: SLIGHT, J. D., M.D. Edin., Hon. Physician; CAIRNS, M.D. Edin., Asst. Hon. Physician.

Certifying Surgeons under the Factory and Workshop Acts: SUTHERLAND, W. D., M.B., Ch.B. Glasg. (Burghead District of Moray); MALCOLM, J., M.B., C.M. Aberd. (Kemnay, Aberdeen); CLOUSTON, E. C. T., M.R.C.S., L.R.C.P. Lond. (Lavenham); and JONES, J. H. (Kidwelly).

Vacancies.

For further information refer to the advertisement columns.

Barbados General Hospital.—Res. S. £330.
Barrow-in-Furness, North Lonsdale Hospital.—H.S. £225.
Bristol Maternity Hospital, Brunswick-square.—Visiting P. and two Asst. P's.
Bristol Royal Infirmary.—Hon. P. and Hon. Asst. P.
Bristol University.—Professorship of Medicine including Directorship of Clinical Studies.
Buxton, Devonshire Hospital.—Bacteriologist. £400.
Cairo, Egyptian Government School of Medicine.—Prof. of Biology. L.E.900–1140.

Chichester, Graylingwell Mental Hospital.—Second and Third Asst. M.O.'s. £350 and £300 respectively.

Guy's Hospital, S.E.—Director of Dept. for Venereal Dis. £500.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., H.S., Cas. M.O., and Cas. Surg. O. Each £100.

Holland County Council, Lincolnshire.—Asst. County M.O. £600.

Hospital for Sick Children, Great Ormond-street, W.C.—H.S. and H.P. Each £50.

Huddersfield, Storthes Hall Asylum, Kirkburton.—Asst. M.O. £400.

Lancashire County Mental Hospital, Winwick, Warrington.—Locum Tenens M.O. 8 guineas weekly.

L.C.C. Mental Hospitals.—Seventh Asst. M.O.'s. £440.

London Hospital, E.—First Asst. to each of the four Medical Firms. £400.

London Hospital Medical College.—Jun. Demonstrator of Physiology.

London Lock Hospital, 91, Dean-street, S.W.—Clin. Assts.

London Temperance Hospital, Hampstead-road, N.W.—R.M.O. £200.

Middlesex Hospital, W.—Physn. to Dept. for Dis. of Nervous System.

Newcastle-upon-Tyne, Princess Mary Maternity Hospital, Jubilee-road, City-road.—Asst. R.M.O. £40.

Nottingham General Hospital.—H.P., H.S., also H.S. for Ear, Nose, and Throat Dept. Each £150.

Oldham Royal Infirmary.—Three H.S.'s. Each £200.

Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.—Obstet. S.

Queen Mary's Hospital for the East End, Stratford, E.—Hon. Asst. P.

Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Dental S. £300.

Royal Army Medical Corps.—20 Commissions.

Royal Chest Hospital, City-road, E.C.—P.

Royal Northern Hospital, Holloway, N.—Anæsthetist. 10 guineas.

St. Albans, Herts Mental Hospital, Hill End.—Locum Tenens Asst. M.O. 7 guineas weekly.

St. Bartholomew's Hospital, E.C.—Radiologist.

St. Marylebone Hospital, Ladbroke-grove, W.—Third Asst. M.O. £300.

St. Pancras Hospital, King's-road, N.W.—Jun. Asst. M.O. £350.

Salford Royal Hospital.—Res. M.O. £175.

Sheffield Royal Infirmary.—Ophth. H.S., H.S., Asst. Cas. O., and H.S. to Ear, Throat, and Nose Dept. Each £60.

South London Hospital for Women, Clapham Common, S.W.—Asst. P.

Stirling District Mental Hospital, Larbert.—Third Asst. M.O. £250.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.

War Memorial Hospital, Enfield, Middlesex.—Hon. Radiologist.

West Bromwich and District Hospital.—Res. H.S. £220.

West London Hospital, Hammersmith-road, W.—H.P., H.S., Aural H.S., Res. Cas. O., and Med. Reg. Each £100.

Western Dispensary, 33, Rochester-row, Westminster, S.W.—Vacancy on Attending Medical Staff.

Births, Marriages, and Deaths.

BIRTHS.

CRANE.—On May 19th, at Bournemouth, the wife of Walter A. Crane, L.D.S., of a daughter.

RUSSELL.—On May 24th, at Southsea, the wife of Major G. Blakeley Russell, R.A.M.C. (retd.), Turret House, Portchester, of a daughter.

WALFORD.—On May 21st, at Wigmore-street, the wife of Dr. Alfred S. H. Walford, of a son.

WATSON.—On May 21st, at Cheltenham, the wife of Lt.-Col. C. H. Watson, D.S.O., I.M.S. (retd.), of a daughter.

MARRIAGES.

BLAKE—WRIGHT.—On May 22nd, at Christ Church, Westminster, Eliot Watson Blake, M.R.C.S., L.R.C.P., to Hilda Margery Wright, youngest daughter of the late Rev. Alban Wright, M.A., and the late Mrs. Wright, of Bedford.

LAIRD—SCOTT.—On May 20th, at St. Columba's, Pont-street, S.W., David Anderson Laird, F.R.C.S.E., of Southport, to Marion, youngest daughter of the late Rev. Adam and Mrs. Scott, of Sale and Southport.

SMART—EVANS.—On April 30th, 1924, at St. Peter's Church, Sible Hedingham, Arthur Herbert John Smart, M.B., B.Ch. Camb., to Amelia Olwen Mona Evans.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

LINKS WITH THE PAST.*

BY SIR J. KINGSTON FOWLER, K.C.V.O., C.M.G., M.D. CAMB.

[THE lecturer, after congratulating the Society on being the oldest hospital medical society in London and on having nevertheless retained the vigour of youth, discussed some of the links binding the Middlesex Hospital and King's College Hospital, referring especially to James Moncrieff Arnott and Dr. Thomas Watson.]

James Moncrieff Arnott was one of the founders of the medical school of the Middlesex Hospital and was for many years one of its surgeons. He was one of the original Fellows of the Royal College of Surgeons of England in 1843.

Sir Thomas Watson was a Tenth Wrangler and a Fellow of his College at Cambridge. He was physician to this hospital from 1827 to 1843, and in 1843 he published his "Lectures on the Principles and Practice of Physic," a book which 50 years ago was read by nearly all students.

Cardiology, Old and New.

It must have been chiefly in the wards of this hospital that Sir Thomas Watson acquired the clinical experience which enabled him to write those lectures, which were delivered partly at King's College and in part to the students of this hospital. I can claim a slender link with Sir Thomas Watson in that on Jan. 27th, 1888, I read a paper before the Clinical Society of London entitled a Case of Disease of the Aortic and Mitral Valves of 54 Years' Duration, originally under the Care of the late Sir Thomas Watson. It was that of a man aged 66, a wood turner, who in 1834, being then a boy aged 13, was admitted to this hospital with an attack of acute rheumatism, for which he remained under treatment for nine months and was readmitted with a relapse for a further period of six months. During 53 years he worked a treadle lathe as a wood turner, and had only been laid up on one occasion for a day or two with a slight cold. He had not experienced any shortness of breath on exertion. His family had not been usually long-lived or exceptionally vigorous. The physical signs indicated a moderate degree of narrowing of the aortic orifice, and that the aortic and mitral valves were incompetent. An enlarged area of præcordial dullness with well-marked systolic recession of the epigastrium and fifth and sixth interspaces suggested, but did not prove, that there were adhesions between the surfaces of the pericardium.

I stated in my paper that there could be little doubt that this was a case of valve disease of rheumatic origin, in which compensation had been established, had remained perfect for 54 years, and still showed no sign of failure. The symptoms of valvular disease depend upon failure of compensation; here there had been no failure, and consequently there had been no symptoms. The patient was admitted into the Middlesex Hospital under the care of my colleague, Dr. Sidney Coupland, on March 27th, and died on May 27th, 1888. At the autopsy the condition of the heart was shortly as follows: The surfaces of the pericardium were universally adherent. The heart weighed 20½ oz. The left auricle and appendix were dilated, the edges of the mitral flap were much thickened; two of the chordæ contained calcareous deposits in their substance; the orifice was narrowed and the valve incompetent. The left ventricle was hypertrophied and dilated. The free margins of the aortic cusps were thickened, deformed, and contracted, so as to produce a slight narrowing of the orifice, and to permit of a moderate amount of regurgitation. There were numerous calcareous plates in the aorta. The kidneys were granular on the surface, and the cortex contained some cysts.

How faithful this patient was to the hospital. Brought to it as a boy, doubtless by his mother, he returned after the relapse, and again after an interval of 54 years of good health, and then for the last time to die within its walls. How typical of one of the most marked characteristics of the English race, an attachment to local institutions. This case has also an additional interest in that it proves, in contradiction to what we have heard somewhat often of late, that 37 years ago it was a matter of common knowledge amongst physicians that the prognosis in valvular disease of the heart did not depend upon the exact time of a murmur or upon the valve which was affected, but upon the condition of the muscular tissue of the heart, as evidenced by the capacity of the patient for physical exertion and upon the presence or absence of what is called "failure of compensation."

* Abstracted from an address delivered on May 22nd to the Middlesex Hospital Medical Society on the occasion of the 150th anniversary of its foundation.

Early Theories on High Blood Pressure.

It is to my mind an easy transition from Sir Thomas Watson to Dr. (afterwards Sir) George Johnson, physician to King's College Hospital, whose memory I revere as my first master in medicine. Sir George Johnson was a master in the use of the stethoscope, and from him I learned the importance of diagnosis in clinical medicine. The public are but little interested in diagnosis, but great authorities on treatment. Yet it would appear at first sight that before the treatment of a patient is considered, a knowledge of the nature of his malady is not out of order. Sir George Johnson has a special claim upon those of you who are about to enter upon the practice of the profession, as you will enjoy an advantage denied to nearly all your predecessors in that you will find that most of your patients are suffering from the same ailment. It is hardly necessary to state that this is blood pressure. This great advantage you owe to Sir George Johnson.

In the preface to his last work he states that "the discovery of the structure and function of the arterioles and of the vaso-motor nervous system has thrown an entirely new light upon pathological subjects so entirely diverse and apparently disconnected as, amongst others, (1) Raynaud's disease; (2) the immediate cause of the arrested circulation and death from apnœa, badly named asphyxia; (3) the true nature and proximate cause of the collapse stage of cholera; and (4) the cause of hypertrophy of the left ventricle of the heart, which is so frequently associated with the contracted granular kidney. The connecting link between these diverse conditions is the 'stop-cock action' of the muscular-walled arterioles, the systemic arterioles being concerned in the first and fourth of the above-mentioned pathological conditions, and the pulmonary arterioles in the second and third."

The stop-cock function of the arterioles and the resulting high blood pressure in chronic Bright's disease are explained as follows: "In my endeavour to explain the cardiac hypertrophy it occurred to me that the impediment to the systemic circulation which calls for more forcible contraction, with resulting hypertrophy of the left ventricle, might be due to a persistent general contraction of the systemic arterioles, this contraction being excited by the abnormal quality of the blood. Then it seemed reasonable to infer that the long-continued over-action of the arterioles would result in hypertrophy of their muscular walls; and, guided by this line of reasoning, I was led to the discovery that the walls of the arterioles are hypertrophied, not only in the kidneys, where I first discovered and described it 17 years before, but also in the skin, the intestines, the voluntary muscles, and the pia mater."

In opposition to the views of Dr. Johnson, Sir William Gull and Dr. Sutton regarded the changes in the arterioles as due to a hyalin-fibroid change and not to hypertrophy of the muscular walls, the result of persistent contraction. This was then and has since been spoken of as arterio-capillary fibrosis, and is the condition present in what is now termed diffuse hyperplastic sclerosis.

The present view of this question, which was the subject of prolonged controversy, is somewhat as follows: Greater importance is attached to the changes in the intima than in the media, and the primary lesion is believed to be in the intima of the smaller and smallest arteries. The hypertrophy of the middle coat, which Dr. Johnson was the first to demonstrate, is admitted, and the changes in both coats is earlier and more marked in the kidney than elsewhere. The hypertrophy of the middle coat is regarded as a physiological response to the increased blood pressure. I do not find in the most recent literature of this subject a recognition of the fact that the hypertrophy of the left ventricle may be just as marked after death, in a case of acute scarlatinal nephritis of some months duration, as it is in chronic interstitial nephritis, and this I regard as the crux of the problem, for in such case there is no doubt as to the renal nature of the primary lesion. The clinical teaching of Dr. George Johnson remains in my judgment as sound to-day as it was 50 years ago.

[The lecturer then described briefly the services to the Society and to the medical school of Andrew Clark, President at the date of the centenary celebration, Alexander Patrick Stewart, Henry Thompson, Edward Headlam Greenhow, Robert Liveing, William Cayley, John Whitaker Hulke, George Lawson, David White Finlay, Thomas Henry Kellock, Robert Henry Lucas and Edward Ashby Fardon, John James Pringle, Robert Wishart Lyell and Charles Leopold Hudson, and Alfred Pearce Gould. He discussed the advances in medicine during the last 50 years, laying special stress on the treatment of acute rheumatism, the prevention and treatment of enteric fever, and the recognition and control of myxœdema. He discussed also the diminution in the use of alcohol in disease and proceeded finally to consider medical research.]

Research.

For the last 15 years it has been my good fortune as hon. secretary, a member of the advisory board, and a trustee of the Beit Fellowship for Medical Research, to have been in close contact with some of those who have taken part in the work of research. To have had such an opportunity, and yet to have come to no conclusions as to how the results which we all desire can best be achieved, would almost be deserving of censure, and I cannot plead such an excuse. When I see on the wall of the building which stands next to that in which we are now assembled, "The Bland-Sutton Institute of Pathology," I see therein embodied all the conclusions at which I long since arrived. To bring together young men imbued with that rare spirit of research and the ability which is so necessary for its prosecution in its highest forms, under a guiding mind who will point out the lines which should be followed, and help to overcome the obstacles which will almost constantly be met with, and to give the encouragement necessary when failure seems to be inevitable—that is my conception of the right way.

In such an atmosphere the work of one man unexpectedly throws light upon that of another, although the researches upon which they are severally engaged appear to be far as the poles asunder. Therein is acquired that knowledge of laboratory technique which is an essential preliminary to success in research, whereas its absence is an almost certain prelude to disaster. It is quite true that it would be possible to tell of many whose names in science are world-wide who did not enjoy the amenities which such an institute affords. The broken-down walls of the old Ecole Normale where Pasteur worked and Lister's Ward in Glasgow Infirmary were not models for future generations to copy, but the lack of many things which they and others needed only hindered their work, it did not help it forwards. They were able by their genius to triumph over the unnecessary difficulties by which they were surrounded.

It is possible that one of those to whom I am now speaking may, when our Society celebrates the completion of 200 years of honoured life, stand in my place and recall the great deeds of science which have marked the 50 years which will then have come to an end. And I do not doubt that he will be able to point to far greater triumphs than have this evening been recalled to your minds, for we are but on the threshold of that garner of knowledge which is called medical science. But let it never be forgotten that the art and practice of medicine in every age have to deal with human nature, which changes but slowly and will never rise above the need for sympathy and kindness in times of sickness, or when about to enter the realms of the eternal silence.

UNBREAKABLE SURGICAL NEEDLES.

Mr. Hamilton Bailey, F.R.C.S., writes: In every branch of operative surgery the breaking of needles has been a source of annoyance, delay, and even danger. I have had needles so tempered that they will not break even when subjected to a much greater stress than is probable in any surgical procedure. Other advantages of these needles are: (1) Being malleable, with two pairs of watchmaker's pliers or (but not so accurately) with Spencer Wells forceps, a needle may at any moment be fashioned to such a curvature as to meet a particular situation in hand; (2) by exerting moderate lateral pressure upon the threaded "eye"—the suture may be "locked" within the needle—thus eradicating another evil—the needle becoming unthreaded. It was Mr. Thelwall Thomas, of Liverpool, who first directed my attention to the possibilities of a needle or bodkin the centre of which had been rendered malleable by being held in a flame.

Messrs. P. Spencer and Sons, surgical needle manufacturers, of Redditch, are the makers.

"THE SHOT."[1]

THE medical interest of this book is not very profound and largely turns upon the question of whether a neurotic, whose character is well indicated in a few lines, was murdered, and, if so, by whom; or whether he shot himself. The solution of the mystery, which is well sustained to the end of a cleverly told story, would not wholly satisfy forensic medicine, but it is the logical termination of some complicated events which are well thought out and arranged coherently. The author has hit upon a new and good plot and has developed it well, writing clearly and forcibly, and getting and preserving a real atmosphere, but in future efforts she might be asked to keep guard over two things. The first is the perpetual use of the historic present, which has so much point when employed occasionally and is so irritating in continuous narrative; the second is, the little trick of asking the reader questions which are generally answered in the next line. The question and answer constitute statements which might as well be made directly. The pleasure given by the good sensational novel is now widely acknowledged by the most serious folk, and we recommend "The Shot" to our readers.

[1] The Shot. By Sybil Creed. London: Chatto and Windus. 1924. Pp. 228.

HEALTH CONDITIONS IN SOMALILAND AND THE STRAITS SETTLEMENTS.

Somaliland.

A REPORT prepared by Mr. H. B. Kittermaster, Secretary to the Administration, states that in 1922 1252 cases were admitted to hospital and there were 17,696 out-patients. These were treated for scurvy 18, ulcers 4196, tuberculosis 167, malaria 115, relapsing fever 92, small-pox 10, influenza 164, dysentery 74, syphilis 844, and gonorrhœa 313. The health of the European population was good. Two officials were invalided, one for dysentery and the other for chronic dyspepsia.

Straits Settlements.

These Settlements, comprising Singapore, Penang, and Malacca, with the dependencies of The Dindings, Cocos-Keeling Islands, and Christmas Island, have a total area of about 1600 square miles. Labuan was incorporated in the Straits Settlements in 1907; its area is 28·6 square miles. The population of Singapore, according to the census of 1921, was 451,912, of Penang 304,335, and of Malacca 153,522. The number of births and deaths registered during the year was 27,723 and 27,804 respectively. In Singapore the deaths exceeded the number of births by 1158, whereas in Penang, Malacca, and Labuan the births were more than the deaths. The crude birth-rate was 30·59 per 1000, against 32·57 in 1921; the decrease probably results from the slump in trade and employment. The percentage of males born was 52, females 48. The highest birth-rate in any nationality was 37·71 per 1000, against 32·57 in 1921, in both years Malay. The lowest was among Indians, 21·43. The infantile mortality (deaths of children under 1 year) was 207·52 per 1000 births, an increase on the previous year when it was 190·69 per 1000. Malacca shows the highest figure, 1128 infantile deaths amongst 4992 births, or 225·9 per 1000; this emphasises the need for more trained Malay midwives. The number of deaths from infantile convulsions, mostly due to tetanus, was 3146, against 37[illegible] in 1921. The crude death-rate was 30·68, against 31·79 per 1000 in 1921; this is the second lowest on record. The highest racial death-rate for the year was 32·15 amongst Chinese, the lowest 9·04 amongst Europeans. The deaths from pneumonia were 1068, against 1230, and from influenza 234, against 237 in the previous year; it is to be borne in mind that Europeans if sick for any length of time usually leave Malaya. Beri-beri accounted for 1388 deaths, as against 1229 and 1026 in 1921 and 1920 respectively. Malaria and tuberculosis were responsible for 3977 and 2966 deaths respectively, against 4703 and 3258 in 1921. Deaths from fever unclassified were 3043, against 2367 in the previous year. Dysentery caused 1085 deaths and diarrhœa 458, against 1090 and 263 in 1921. There were 45 deaths from cerebro-spinal fever, 39 from plague, 2 from cholera, and 80 from small-pox.

THE GARB OF THE PHYSICIAN.

A HISTORICAL study of the garb of the physician in France was written some time ago by Dr. Cabanès, of Paris, and this study has now been extended to include the physician in other lands, as illustrated by contemporary drawings and paintings. The description of English physicians in "Le costume du médecin à l'étranger"[1] was compiled with the aid of Sir Anthony Bowlby, Dr. J. D. Rolleston, and others. Holbein reproduced several types of doctors during his residence at the Court of Henry VIII., such as the famous Dr. John Chambers, in fur collared robe, physician-in-ordinary to the King. Hogarth portrayed the doctors of his time with irony. He dealt as severely with physicians as with judges, advocates, lawyers, or churchmen, fleshing his mordant wit in the quackery of the one profession as he did in the incompetence of the other and in the ignorance of all. His famous picture of "Doctors with their Walking Sticks" is a masterpiece of irony, although a little far-fetched. In this picture the physician is clad in a long robe buttoned down in front or with lapels, a square-crowned hat or a flattened velvet cap, sporting a wig with many curls, and carrying the inseparable knob-headed stick. The physician was thus hardly to be distinguished from the townsman of the day. The dress of doctors of France and abroad is an expression of the same principle which underlies a similar psychology.

AN EARLY OBSERVATION OF CAISSON DISEASE.

THE late Deputy Inspector-General Archibald McKinley, R.N., who died on May 17th at Southsea, was the first to demonstrate, in 1900, at a post-mortem examination, the pathology of caisson disease, which had hitherto been very obscure. The case as given in the "Health of the Navy" Blue-book, 1900, p. 102, is as follows:—

"A man went down in a diving dress to 24½ fathoms, remained down 40 minutes, and came up in 20 minutes, slowly, and was quite all right for eight or nine minutes when he complained of pain in the stomach, and collapsed, became cyanosed, and died in six or seven minutes. In the choroid plexus there were bubbles of air in the vessels, giving a beaded appearance. The veins of heart and mesentery looked similar and air came in a puff from the right heart when opened. He (McKinley) suggested gas had been absorbed by blood under pressure of 4½ atmospheres and afterwards escaped as from soda-water, causing death from air embolism."

Dr. McKinley received his medical training at the Royal College of Surgeons in Ireland, where he qualified as licentiate in 1872, and the following year obtained the L.R.C.P.I. and L.M.

WALKING FOR HEALTH.

Dr. A. H. Doty, in a recently published little book entitled "Walking for Health" (New York: D. Appleton and Company, 1923, pp. 44, 2*s.*), emphasises the necessity for those engaged in sedentary occupations of taking a walk of from one to five miles in the open air every day. He points out that the exercise of walking steadily has a beneficial effect upon the circulation and may reduce the liability to arterio-sclerosis. The book is pleasantly written in a popular style.

A NEW ACOUSTIC AID FOR THE DEAF.

THE "Aurolaid" pattern of electric acoustic aid for the deaf is made on the same principles as other electric aids and is a well-constructed piece of apparatus. This pattern consists of two identical, or twin, instruments, one of which can be worn on each ear, and the transmitters can be placed in a small leather attaché case provided with openings at the back to transmit the sound. The receivers are particularly small and neat, are provided with a vulcanite projection to fix into the meatus and with a flexible metal hook to pass around the auricle, thus avoiding the use of a head-spring. Each transmitter is double and, having a hinge between the two parts, can be bent to stand on a table. The apparatus is small and light, the twins weighing 15 oz., each, but not 7 oz. as stated by the makers. We have tried it on a few cases of severe middle-ear deafness, and have found it powerful and effective; but there is a considerable amount of adventitious noise, and a certain amount of distortion of the voice, which we hope that the ingenuity of this old-established firm will be able to overcome.

The apparatus can be obtained from the makers, Messrs. F. Charles Rein and Son, 30, Charing Cross-road, London, W.C. The price of six guineas is a reasonable one.

FRAUDULENT BEGGING FROM MEDICAL MEN.

A MAN named William Stanley Reeves, alias William Stanley Bennett, has been committed at Peterborough on a charge of obtaining a cheque and money from medical men on false pretences. His fraud was based on the false statements that he was a physical training instructor to a boys' club and that the particular doctor on whom he called had been elected president of the club: he then asked for a subscription to meet a deficiency of funds. The man is 32 years of age, is 5 feet 7½ inches high, has dark-brown hair and a dark complexion, and it is stated that he has had previous convictions at St. Albans, Devonport, Plymouth, Warminster, and Woking. We understand that the Chief Constable of Peterborough would be glad if any person who has been defrauded will give particulars of their complaint to the Chief Constable's Office, Peterborough. Their attendance as witnesses would not be required.

THE NURSING OF SURGICAL TUBERCULOSIS.

THE great advance being made in the treatment of children suffering from surgical tuberculosis, which advance is both curative and educational, has necessitated highly specialised nursing. Miss Janet P. Robertson, matron of the Lord Mayor Treloar's Hospital and College at Alton, has made a valuable contribution in this direction in a small book entitled "The Nursing of Surgical Tuberculosis in Children" (London: Scientific Press, pp. 88, 3*s.*). The book includes an outline of the nursing of the common forms of surgical tuberculosis; valuable information with reference to splints, diet, and education; and useful chapters on plaster work and sun treatment. The good work achieved at Lord Mayor Treloar's Hospital, Alton, is now well known, and it is a privilege to have, in such concise form, information directly based on the experience of those who have contributed so substantially to the success of this work. The last chapter on administration is especially useful.

Corrigendum.—In Prof. A. V. Hill's lecture on the Function of Hæmoglobin in the Body (THE LANCET, May 17th, p. 994, col. 1, line 15) the word "hæmochromogen" should read "hæmatoporphyrin."

[1] P. Longuet, 34, Rue Sedaine, Paris.